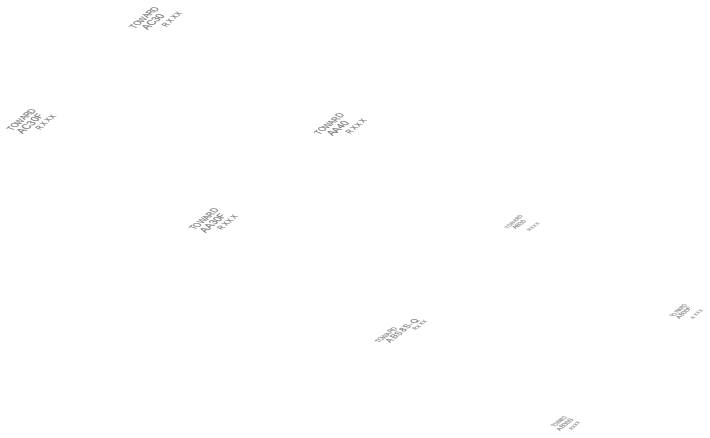
RELAY SINCE 1988

TOWARD

Enrich your design.

Solid State Relay



2016 Rev 2

CONTENTS

RELAY SINCE 1988
TOWARD
Enrich your design.

TC Series

Photo Triac

Features

- Compact DIP8 Pin Package
- High Isolation Voltage 5000VAC between input and output
- 600VDC peak blocking Voltage
- Be suitable for 110/220VAC power voltage
- Random-on & Zero-on types are available

Applications

- Power TRIAC driver
- Household appliance
- Soild State Relay

Order Code:

TC 2 09 R - 1
a b c d e

a : Model : TC=DIP 8 Pin Package Type
b : Output Voltage : 2 = 240VAC
c : Output Current : 09 = 0.9Amp ; 12 = 1.2Amp
d : Turn on Type : Nil = Zero-on ; R = Random - on
e : Option : Nil = Standard, 1 - 9 = Special Code

Absolate Maximum Rating:

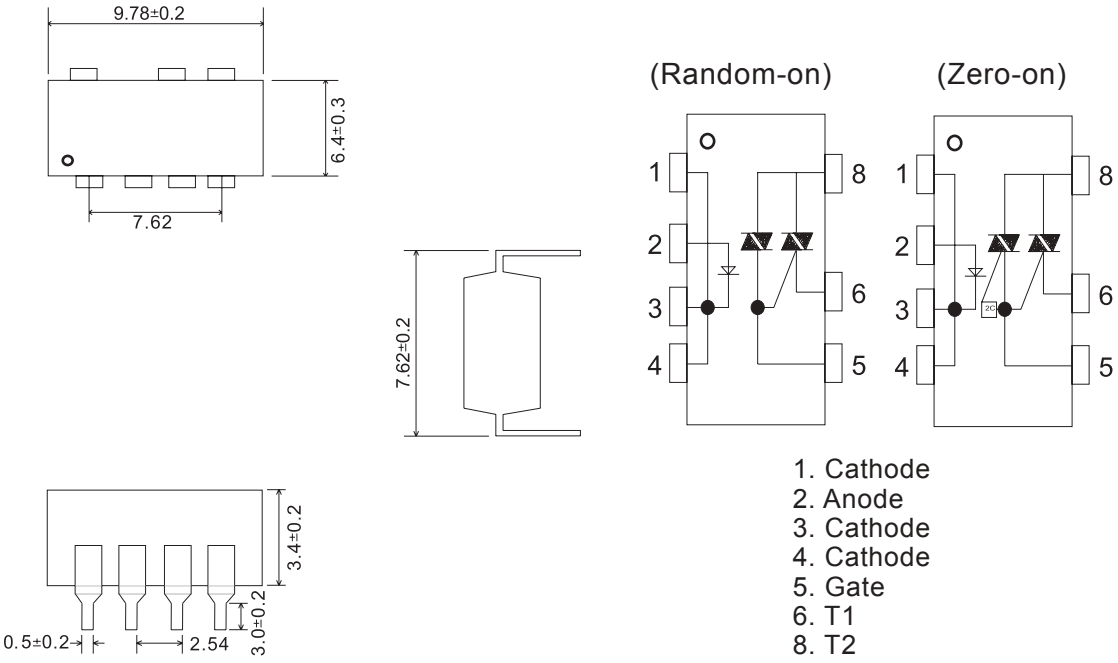
Item		Symbol	Rating		Unit
			TC209(R)	TC212(R)	
Input	Forward Current	I_F	50		mA
	Peak Forward Current	I_{FP}	1		A
	Reverse Voltage	V_R	6		V
Output	Off-state Output Voltage	V_{DRM}	600		VDC
	On-state Output Current	$I_{T(RMS)}$	0.9	1.2	A
	Non-repeatitive Sutge Current	I_{TSM}	9	12	A
I/O Isolation Voltage		V_{iso}	5000		VAC
Operating Temperature		T_{opr}	-30~+85		℃
Storage Temperature		T_{stg}	-40~+125		℃

Electrical Characteristics:

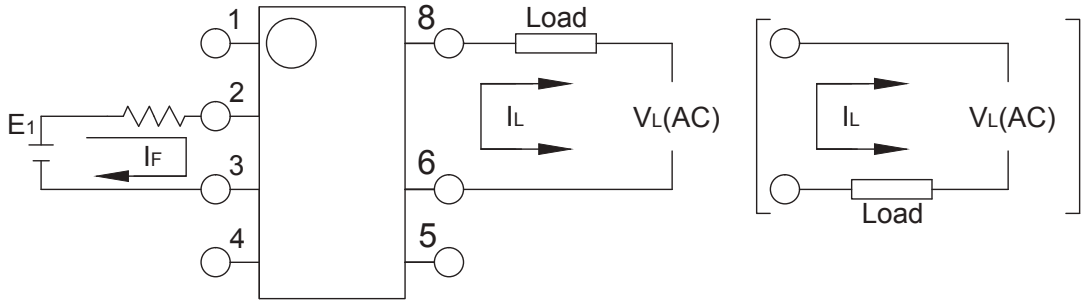
Item		Symbol	MIN.	Rating		MAX.	Unit	Conditions
				TC209(R)	TC212(R)			
Input	Forward Voltage	V_F	-	1.18		1.4	V	I_F=10mA
	Reverse Current	I_R	-	-		10	μA	V_R=6V
Output	Peak Leakage Current	I_{DRM}	-	-		100	μA	V_{DRM}=600V
	On-state Voltage	V_{TM}	-	1.3	1.1	2.3	V	I_T=Rated I_T
	Hold Current	I_H		-		25	mA	V_D=6V
	Rise rate of off-state	dv/dt	200	1000		-	V/μS	V_{DRM}=600V/$\sqrt{2}$
Minimum trigger current		I_{FT}	-	2		10	mA	V_D=6V
Recovery Input Voltage		VF_{OFF}	0.5	-		-	V	
I/O Isolation Resistance		R_{iso}	50G	-		-		DC=500V
Turn-on Time (Random-on)		T_{ON}	-	8		100	μS	I_F=20mA
Turn-on Time (Zero-on)		T_{ON}	-	-		10	mS	-
Turn-off Time		T_{OFF}	-	-		10	mS	-

Note:Recommended trigger current is between 10mA and 20mA.

Dimensions : (Unit : mm)



Wiring Diagram



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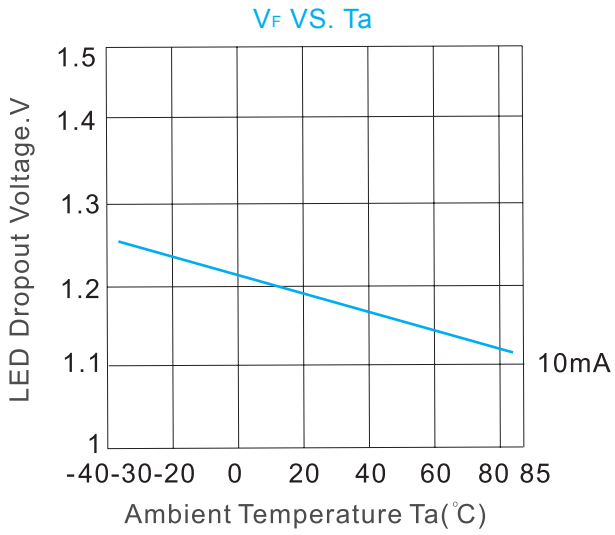
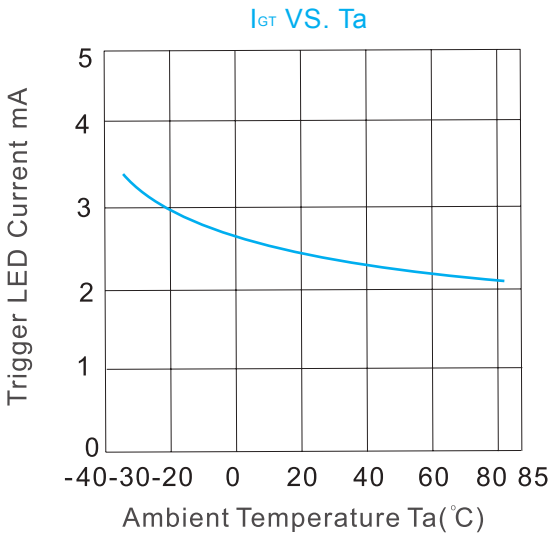
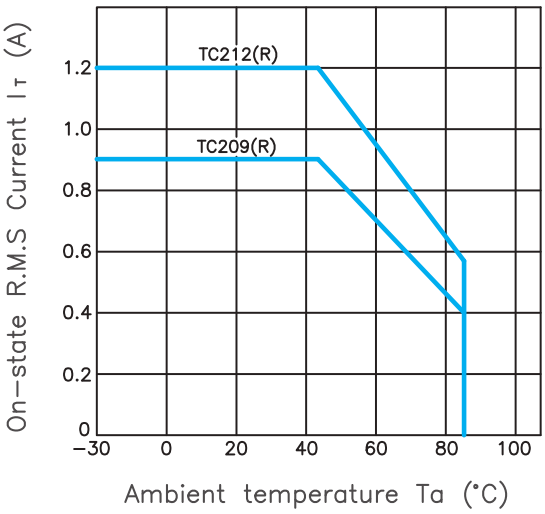




IF VS. Ta



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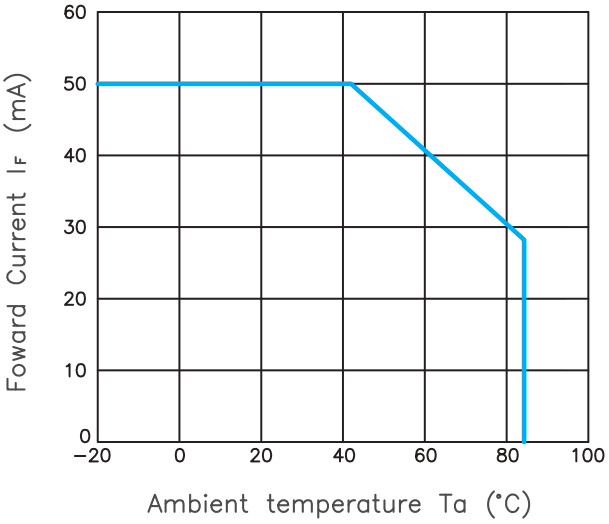
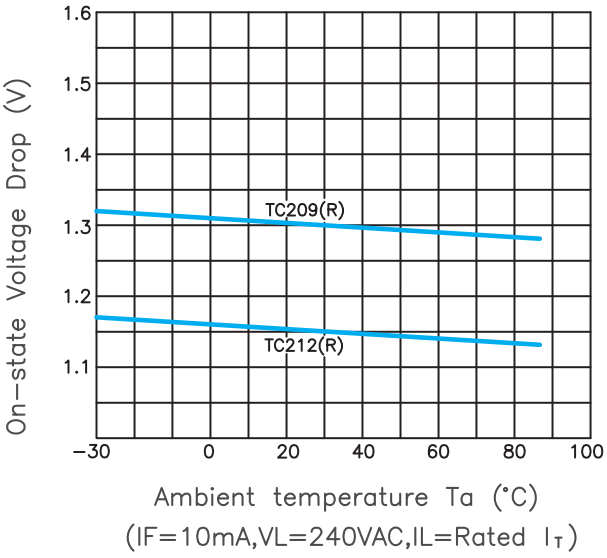
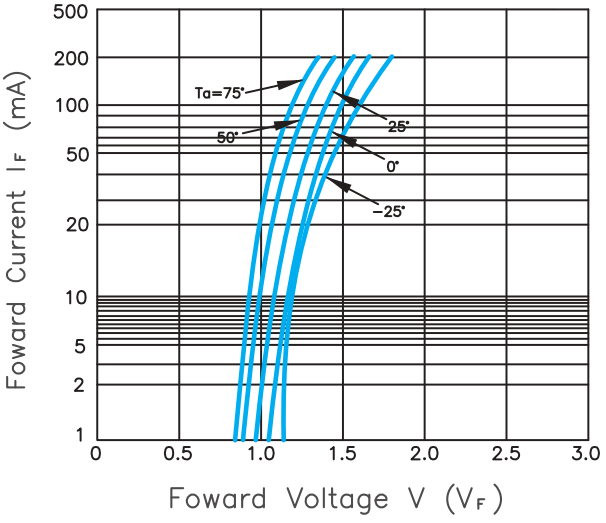


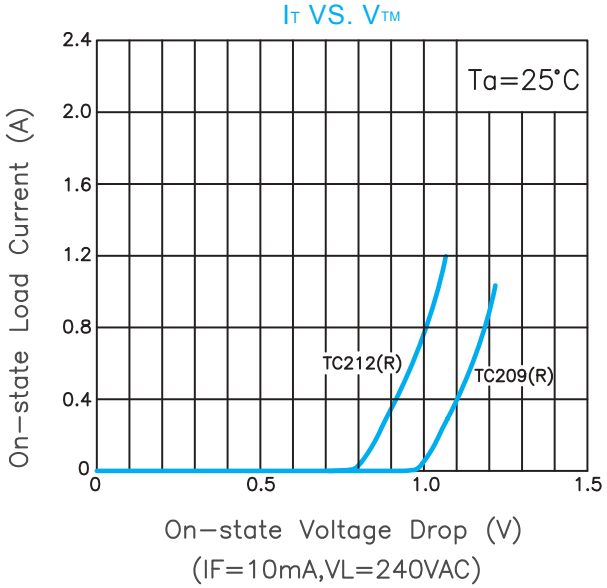
VTM VS. Ta



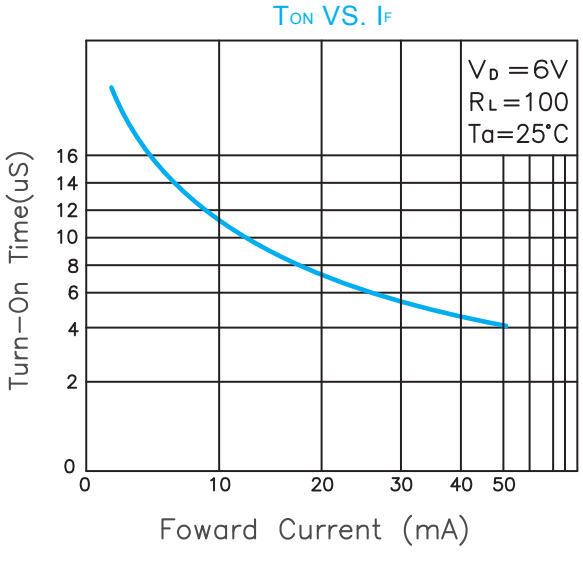
IF VS. TF



IT VS. VTM



TON VS. IF



S.S.R.

TM Series

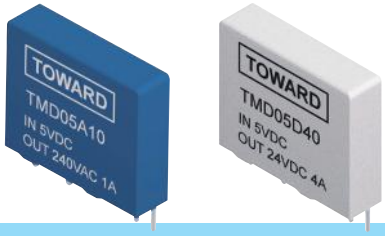
D/D·D/A·Load Current:1~4A

Features

- Optically isolated
- Ultra Slim and light weight, Sil terminals type for high density mounting :
  --Size : 5(W) x 20(L) x 17(H) mm;
  --Weight approximately 3.0g
- Low On-state resistance
- Low input power consumption
  TTL and CMOS compatible control
- MOSFET output thyristor (DC output only)
- UL recognized.

Applications

- Temperature control system
- Industrial automatic control
- Lighting System
- Office appliances
- Factory appliances



Order Code:

TM D05 A10
a b c

a : Model : TM = Mini SIP Type
b : Input Voltage : D05 = DC5V ; D12 = DC12V ; D24 = DC24V
c : Output Current : A10 = AC1.0A ; D40 = DC4.0A

Specifications (AC Output)

Input Circuit			
Type No	**TMD05A10**	**TMD12A10**	**TMD24A10**
Nominal Voltage	5VDC	12VDC	24VDC
Control Voltage Range	3~8VDC	8~18VDC	18~30VDC
Control Current	16mA	12mA	11mA
Min. Turn-off Voltage	1VDC		

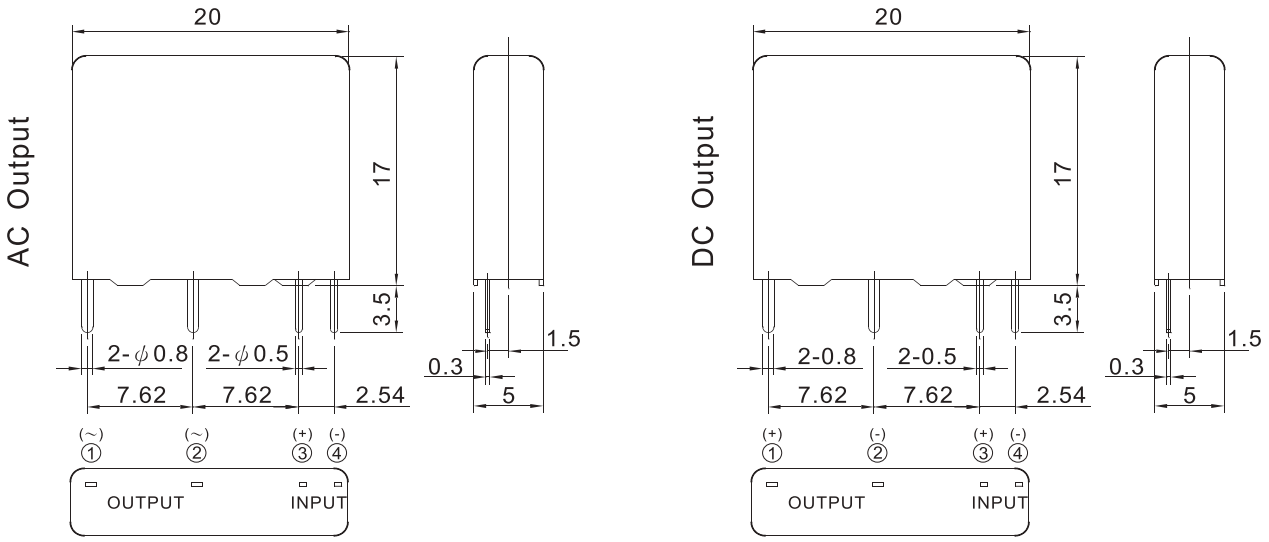
Output Circuit	
Max. Load Current	1.0 A
Min. Load Current	50 mA
Nominal Load Voltage	240 VAC
Load Voltage Range	24~265 VAC
Non-Repetitive Max. Voltage	600 V
Non-Repetitive Max. Peak Current	50 A
Max. Off-State Leakage Current	2.0 mA
Max. On-State Drop Voltage	1.5 V
Zero-On or Random-On	Random-On
Max. Turn-On Time	1 mS
Max. Turn-Off Time	1/2 Cycle + 1 mS
Max. Soldering Heat	220℃ (10 Sec)
Insulaton Resistance	1000MΩ , DC500V (for Input - Output)
Dielectric Strength (Between Input & Output)	2500V rms , 60 Sec (for Input - Output)
Operating Temperature Range	-30℃ ~+80℃
Storage Temperature Range	-40℃ ~+100℃

Specifications (DC Output)

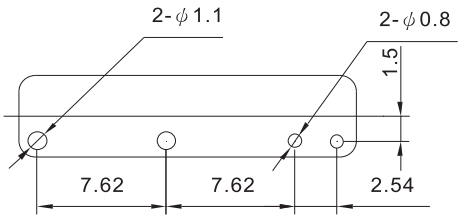
Input Circuit			
Type No	**TMD05D40**	**TMD12D40**	**TMD24D40**
Nominal Voltage	5VDC	12VDC	24VDC
Control Voltage Range	3~8VDC	8~18VDC	18~30VDC
Control Current	16mA	12mA	11mA
Min. Turn-off Voltage	1VDC		

Output Circuit	
Max. Load Current	4.0 A
Min. Load Current	1 mA
Nominal Load Voltage	60 VDC
Load Voltage Range	0~60 VDC
Max. Peak Current	7A (10ms)
Max. Off-State Leakage Current	<1 mA
Max. On-State Drop Voltage (2A)	0.24 V
Max. Turn-On Time	1 mS
Max. Turn-Off Time	0.1 mS
Operating Switching Frequency	10 Hz
Max. Soldering Heat	220℃ (10 Sec)
Insulaton Resistance	1000MΩ , DC500V (for Input-Output)
Dielectric Strength (Between Input & Output)	2500V rms , 60 Sec (for Input-Output)
Operating Temperature Range	-20℃ ~+80℃
Storage Temperature Range	-25℃ ~+80℃

Dimensions : (Unit : mm)



P.C.B. Layout (TOP View)



S.S.R.

TG Series

D/A·Load Current : 2.0A

Features

- Small volume, SIP PCB mounting
- DC input, AC output
- Load current 2A
- Insulation voltage 2500V
- Internal RC circuit snubber

Applications

- Air conditioner
- Programmable control machine
- Greaser
- Automobile

Order Code:

TG D05 A20 3 R
a b c d e

a : Model : TG = DC Input, AC Output
b : Input Voltage : D05 = DC5V ; D12 = DC12V ; D24 = DC24V
c : Output Current : A = AC 2.0A
d : Output Voltage : NIL = 240VAC ; 3 = 380VAC
e : Turn - On Type : NIL = Zero - ON ; R = Random - ON

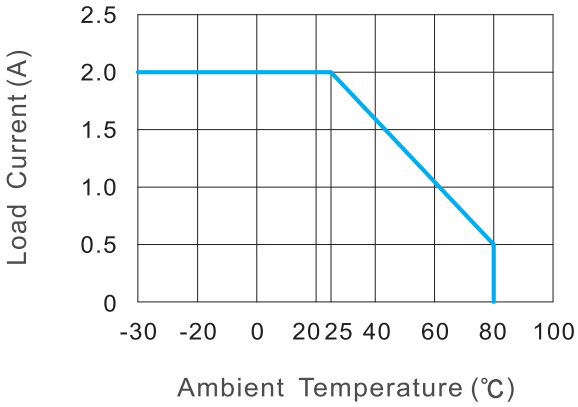
Specifications (AC Output)

Input Circuit			
Type No	**TGD05*****	**TGD12*****	**TGD24*****
Control Voltage Range	4~6 VDC Max.	9.6~14.4 VDC Max.	19.2~28.8 VDC Max.
Pick-Up Voltage	4VDC Max.	9.6VDC Max.	19.2VDC Max.
Input Current (nominal voltage)	Max. 13.1mA Min. 4.3mA	Max. 16.5mA Min. 5.4mA	Max. 15.4mA Min. 5.2mA
Release Voltage	1 VDC Min.	1 VDC Min.	1 VDC Min.
Input Internal Resistor	440Ω, ±20%	1KΩ, ±20%	2.2KΩ, ±20%

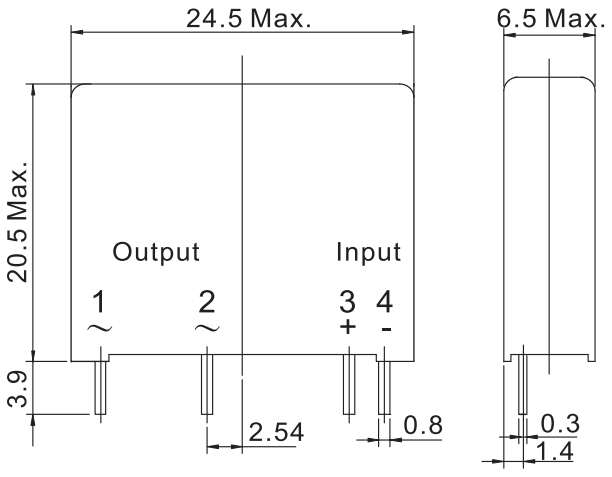
Output Characteristics (at 20℃)			
Type No	**TGD**A20**	**TGD**A20R**	**TGD**A203**
Load Current Range	0.1~2 Arms		
Operating Range	75~264 VAC		90~418 VAC
Non-Repetitive Max. Voltage	600 Vpk		800 Vpk
Non-Repetitive Max. Peak Current	25 Apk , 10ms		
Off-State Leakage Current	1.5mA		2.5mA
Turn-On Time (at 50Hz)	11 ms Max.	1ms Max.	11ms Max.
Turn-Off Time (at 50Hz)	11 ms Max.		
I^2t	$3A^2s$ Max., 10ms		
Off State dv / dt	100 V/μs Min.		
Min. Power Factor	0.5, Rated Load		

General Characteristics	
Insulation Resistance	1000 MΩ Min., 500 VDC
Dielectric Strength	2500 VAC Min., 60Sec
Vibration	10~555Hz, 0.75 mm , Amplitude , 5G
Shock	100 G
Operating Temperature Range	-30℃ ~+80℃
Storage Temperature Range	-30℃ ~+100℃
Humidity	45%~85%
Weight	6 g

Output Characterize



Dimensions : (Unit : mm)



Bottom View

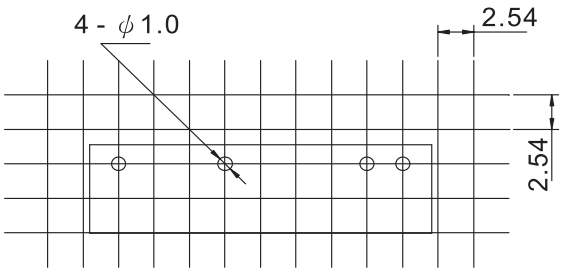
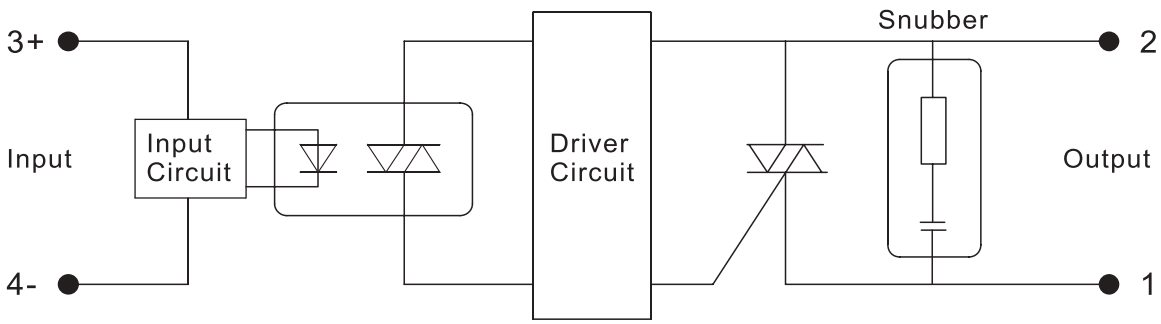


Photo - Triac



S.S.R.

TMC Series

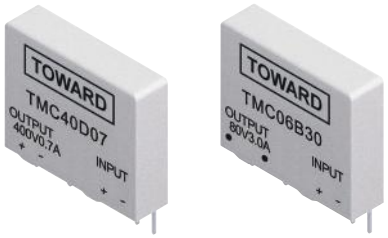
D/D·D/A·Load current:0.5~4.0A

Features

- Optically isolated
- Ultra Slim and light weight, Sil terminals type for high density mounting :
  --Size:5(W) x 20(L) x 17(H) mm;
  --Weight:approximately 3.0g
- Low On-state resistance
- Low input power consumption
- MOSFET output thyristor

Applications

- Temperature control system
- Industrial automatic control
- Lighting system
- Office appliances
- Factory appliances

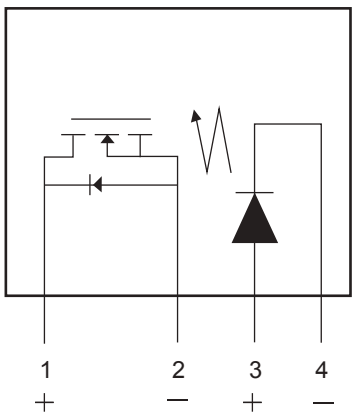


Order Code:

TMC 40 D 07
a b c d

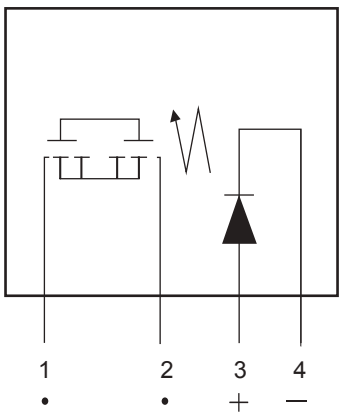
a : Model : TMC = Mini SIP Type, Current Input
b : Output Voltage : 06 = 60V ; 10 = 100V ; 20 = 200V ; 40 = 400V
c : Output Type : B = AC / DC Type, Current Input
d : Outpet Current : 05 = 0.5A, 07 = 0.7A, 10 = 1.0A, 15 = 1.5A,
20 = 2.0A, 28 = 2.8A, 30 = 3.0A, 40 = 4.0A

Terminal Identification



DC Type

Pin1 : DC Output +
Pin2 : DC Output –
Pin3 : DC Voltage input +
Pin4 : DC Voltage input –



AC/DC Type

Pin1 : AC/DC Output •
Pin2 : AC/DC Output •
Pin3 : DC Voltage input +
Pin4 : DC Voltage input –

Rating

AC/DC Type 1) Absolute Maximum Ratings (Ambient Temperature 25℃)

Item		Symbol	06B30	10B20	20B10	40B05	Remarks
Input	LED Forward Current	I_F	50mA				
	LED Reverse Voltage	V_R	5V				
	Peak Forward Current	I_{FP}	1A				f=100Hz.Duty factor=0.1%
	Power Dissipation	P_{IN}	75mW				
output	Load Voltage (Peak AC)	V_L	60V	100V	200V	400V	
	Continuous Load Current (Peak AC)	I_L	3.0A	2.0A	1.0A	0.5A	
	Peak Load Current	I_{PEAK}	9.0A	6.0A	3.0A	1.5A	100mS (1shot)
	Power Dissipation	P_{OUT}	1.6W				
Total Power Dissipation		P_T	1.6W				
I/O Breakdown Voltage		$V_{I/O}$	2500VAC				
Operating Temperature		T_{OPR}	-40℃ ~+85℃				
Storage Temperature		T_{STG}	-40℃ ~+100℃				

2) Electrical Specifications (Ambient Temperature 25℃)

Item				Symbol	06B30	10B20	20B10	40B05	Remarks
Input	LED Operate Current		Typical	$I_{F\ ON}$	1.0mA				I_L=100mA V_L=10V
			Maximum		3.0mA				
	LED Turn Off Current		Typical	$I_{F\ OFF}$	0.5mA				I_L=100mA V_L=10V
			Maximum		0.3mA				
	LED Dropout Voltage		Typical	V_F	1.4V				I_F=50mA
			Maximum		1.7V				
output	On-Resistance		Typical	V_L	0.09Ω	0.14Ω	0.5Ω	2.4Ω	I_F=10mA I_L=Max Within 1 Sec on time
			Maximum		0.18Ω	0.28Ω	1.0Ω	3.6Ω	
	Off-State Leakage Current		Maximum	-	10 μA				I_F=0mA V_L=Max
Others	Switching Speed	Turn-On Time	Typical	T_{on}	2.2mS	2.4mS	1.5mS	1.4mS	I_F=10mA I_L=100mA V_L=10V
			Maximum		5.0mS				
		Turn-Off Time	Typical	T_{off}	0.1mS	0.1mS	0.1mS	0.1mS	I_F=10mA I_L=100mA V_L=10V
			Maximum		3.0mS				
	I/O Capacitance		Typical	$C_{I/O}$	0.8pF				f=1MHz
			Maximum		2.0pF				
	I/O Insulation Resistance		Maximum	$R_{I/O}$	1000MΩ				500VDC
	Maximum Operating Speed		Maximum	-	0.5cps				I_F=10mA Duty Fator=50% I_L=Max, V_L=Max

DC Type

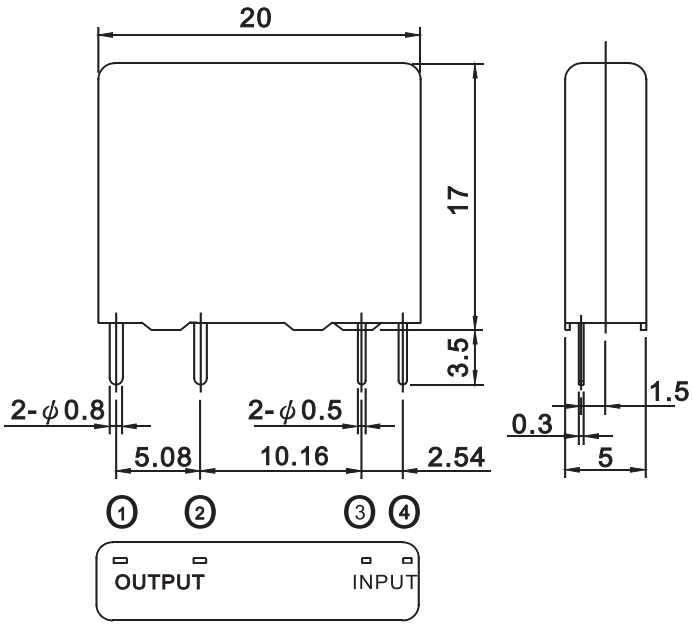
1) Absolute Maximum Ratings (Ambient Temperature 25℃)

Item		Symbol	06D40	10D28	20D15	40D07	Remarks
Input	LED Forward Current	I_F	50mA				
	LED Reverse Voltage	V_R	5V				
	Peak Forward Current	I_{FP}	1A				f=100Hz.Duty factor=0.1%
	Power Dissipation	P_{IN}	75mW				
output	Load Voltage (Peak AC)	V_L	60V	100V	200V	400V	
	Continuous Load Current (Peak AC)	I_L	3.0A	2.0A	1.0A	0.5A	
	Peak Load Current	I_{PEAK}	9.0A	6.0A	3.0A	1.5A	100mS (1shot)
	Power Dissipation	P_{OUT}	1.6W				
Total Power Dissipation		P_T	1.6W				
I/O Breakdown Voltage		$V_{I/O}$	2500VAC				
Operating Temperature		T_{OPR}	-40℃ ~+85℃				
Storage Temperature		T_{STG}	-40℃ ~+100℃				

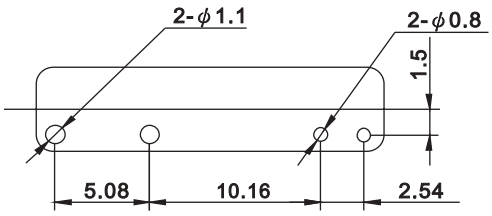
2) Electrical Specifications (Ambient Temperature 25℃)

Item				Symbol	06D40	10D28	20D15	40D07	Remarks
Input	LED Operate Current		Typical	$I_{F\ ON}$	1.0mA				I_L=100mA V_L=10V
			Maximum		3.0mA				
	LED Turn Off Current		Typical	$I_{F\ OFF}$	0.5mA				I_L=100mA V_L=10V
			Maximum		0.3mA				
	LED Dropout Voltage		Typical	V_F	1.4V				I_F=50mA
			Maximum		1.7V				
output	On-Resistance		Typical	V_L	0.045Ω	0.07Ω	0.25Ω	1.2Ω	I_F=10mA I_L=Max Within 1 Sec on time
			Maximum		0.09Ω	0.14Ω	0.5Ω	1.8Ω	
	Off-State Leakage Current		Maximum	-	10μA				I_F=0mA V_L=Max
Others	Switching Speed	Turn-On Time	Typical	T_{on}	1.3mS	2.0mS	1.0mS	0.9mS	I_F=10mA I_L=100mA V_L=10V
			Maximum		5.0mS				
		Turn-Off Time	Typical	T_{off}	0.1mS	0.1mS	0.1mS	0.1mS	I_F=10mA I_L=100mA V_L=10V
			Maximum		3.0mS				
	I/O Capacitance		Typical	$C_{I/O}$	0.8pF				f=1MHz
			Maximum		2.0pF				
	I/O Insulation Resistance		Maximum	$R_{I/O}$	1000MΩ				500VDC
	Maximum Operating Speed		Maximum	-	0.5cps				I_F=10mA Duty Fator=50% I_L=Max, V_L=Max

Dimensions : (Unit : mm)



P.C.B. Layout (TOP View)



Note:Recommended trigger current is between 10mA and 20mA.

S.S.R.

TMV Series

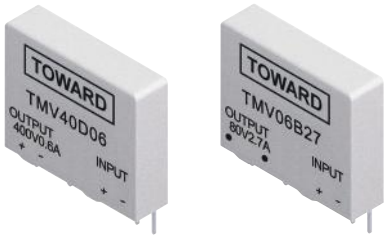
D/D·D/A·Load Current:0.45~3.6A

Features

- Optically isolated
- Ultra Slim and light weight, Sil terminals type for high density mounting :
  --Size : 5(W) x 20(L) x 17(H) mm;
  --Weight : approximately 3.0g
- Low On-state resistance
- Low input power consumption
- MOSFET output thyristor

Applications

- Temperature control system
- Industrial automatic control
- Lighting system
- Office appliances
- Factory appliances

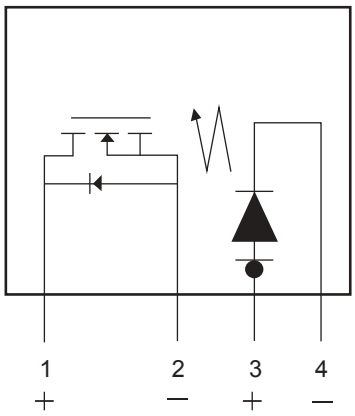


Order Code:

TMV 40 D 06
a b c d

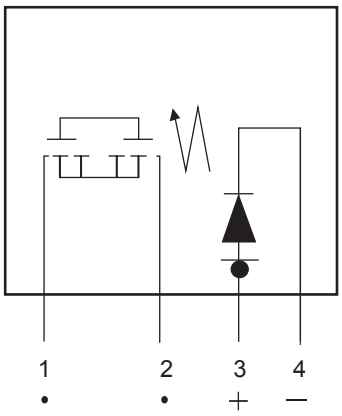
a : Model : TMV = Mini SIP Type, Voltage Input
b : Output Voltage : 06 = 60V ; 10 = 100V ; 20 = 200V ; 40 = 400V
c : Output Type : B = AC / DC Type, D = DC Type
d : Outpet Current : 04 = 4.5A, 06 = 0.6A, 09 = 0.9A, 11 = 1.1A,
18 = 1.8A, 25 = 2.5A, 27 = 2.7A, 36 = 3.6A

Terminal Identification



DC Type

Pin1 : DC Output +
Pin2 : DC Output –
Pin3 : DC Voltage input +
Pin4 : DC Voltage input –



AC/DC Type

Pin1 : AC/DC Output •
Pin2 : AC/DC Output •
Pin3 : DC Voltage input +
Pin4 : DC Voltage input –

Rating

AC/DC Type 1) Absolute Maximum Ratings (Ambient Temperature 25℃)

Item		Symbol	06B27	10B18	20B09	40B04	Remarks
Input	Voltage range	V_{IN}	4~32V				
	Reverse Voltage	V_{RIN}	5V				
	Power Dissipation	P_{IN}	300mW				
output	Load Voltage (Peak AC)	V_L	60V	100V	200V	400V	
	Continuous Load Current (Peak AC)	I_L	2.7A	1.8A	0.9A	0.45A	
	Peak Load Current	I_{PEAK}	9.0A	6.0A	3.0A	1.5A	100mS (1shot)
	Power Dissipation	P_{OUT}	1.6W				
Total Power Dissipation		P_T	1.6W				
I/O Breakdown Voltage		$V_{I/O}$	2500VAC				
Operating Temperature		T_{OPR}	-40℃ ~+85℃				
Storage Temperature		T_{STG}	-40℃ ~+100℃				

2) Electrical Specifications (Ambient Temperature 25℃)

Item				Symbol	06B27	10B18	20B09	40B04	Remarks
Input	Operate Voltage		Typical	$V_{F\ ON}$	1.4V				I_L=100mA V_L=10V
			Maximum		4V				
	Turn Off Voltage		Typical	$V_{F\ OFF}$	1.3V				I_L=100mA V_L=10V
			Maximum		0.8V				
	Input current		Typical	I_{IN}	7.2mA				V_{IN}=5V
			Typical						
output	On-Resistance		Maximum	R_{ON}	0.09Ω	0.14Ω	0.5Ω	2.4Ω	V_{IN}=5V I_L=Max Within 1 Sec on time
			Maximum		0.18Ω	0.28Ω	1.0Ω	3.6Ω	
	Off-State Leakage Current		Typical	-	10 μA				V_{IN}=5V V_L=Max
Others	Switching Speed	Turn-On Time	Maximum	T_{on}	2.5mS	4.2mS	2.8mS	1.5mS	V_{IN}=5V I_L=100mA V_L=10V
			Typical		10mS				
		Turn-Off Time	Maximum	T_{off}	0.1mS	0.1mS	0.1mS	0.1mS	V_{IN}=5V I_L=100mA V_L=10V
			Typical		3.0mS				
	I/O Capacitance		Maximum	$C_{I/O}$	0.8pF				f=1MHz
			Maximum		2.0pF				
	I/O Insulation Resistance		Maximum	$R_{I/O}$	1000MΩ				500VDC
	Maximum Operating Speed		Maximum	-	0.5cps				V_{IN}=5V, Duty Fator=50% I_L x V_L=200(VA)

DC Type

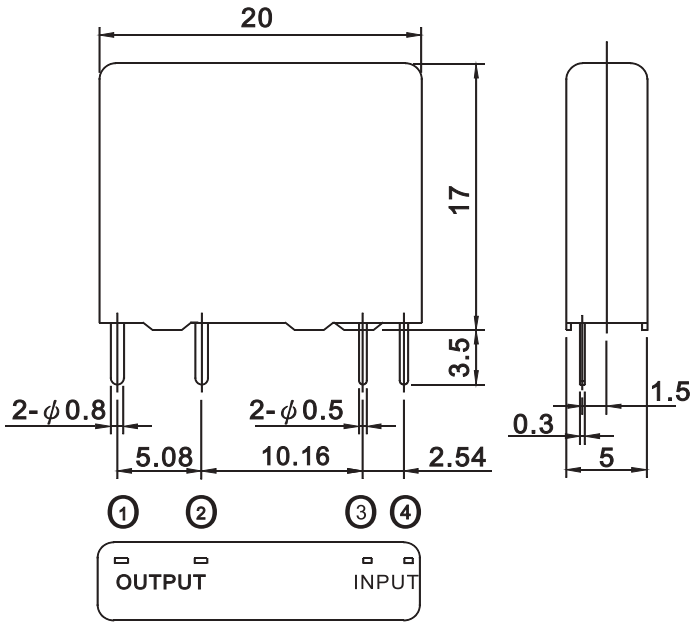
1) Absolute Maximum Ratings (Ambient Temperature 25℃)

Item		Symbol	06D36	10D25	20D11	40D06	Remarks
Input	Voltage range	V_{IN}	4~32V				
	Reverse Voltage	V_{RIN}	5V				
	Power Dissipation	P_{IN}	300mW				
output	Load Voltage (Peak AC)	V_L	60V	100V	200V	400V	
	Continuous Load Current (Peak AC)	I_L	3.6A	2.5A	1.1A	0.6A	
	Peak Load Current	I_{PEAK}	9.0A	6.0A	3.0A	1.5A	100mS (1shot)
	Power Dissipation	P_{OUT}	1.35W				
Total Power Dissipation		P_T	1.35W				
I/O Breakdown Voltage		$V_{I/O}$	2500VAC				
Operating Temperature		T_{OPR}	-40℃ ~+85℃				
Storage Temperature		T_{STG}	-40℃ ~+100℃				

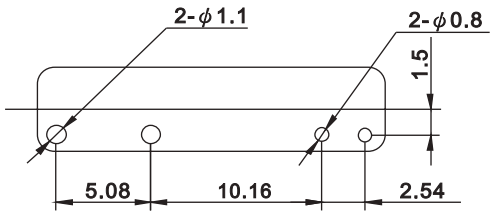
2) Electrical Specifications (Ambient Temperature 25℃)

Item				Symbol	06D36	10D25	20D11	40D06	Remarks
Input	Operate Voltage		Typical	$V_{F\ ON}$	1.4V				I_L=100mA V_L=10V
			Maximum		4V				
	Turn Off Voltage		Typical	$V_{F\ OFF}$	1.3V				I_L=100mA V_L=10V
			Maximum		0.8V				
	Input current		Typical	I_{IN}	7.2mA				V_{IN}=5V
			Typical						
output	On-Resistance		Maximum	R_{ON}	0.045Ω	0.07Ω	0.25Ω	1.2Ω	V_{IN}=5V I_L=Max Within 1 Sec on time
			Maximum		0.09Ω	0.14Ω	0.5Ω	1.8Ω	
	Off-State Leakage Current		Typical	-	10 μA				V_{IN}=5V V_L=Max
Others	Switching Speed	Turn-On Time	Maximum	T_{on}	1.5mS	2.5mS	1.5mS	1.0mS	V_{IN}=5V I_L=100mA V_L=10V
			Typical		10mS				
		Turn-Off Time	Maximum	T_{off}	0.1mS	0.1mS	0.1mS	0.1mS	V_{IN}=5V I_L=100mA V_L=10V
			Typical		3.0mS				
	I/O Capacitance		Maximum	$C_{I/O}$	0.8pF				f=1MHz
			Maximum		2.0pF				
	I/O Insulation Resistance		Maximum	$R_{I/O}$	1000MΩ				500VDC
	Maximum Operating Speed		Maximum	-	0.5cps				V_{IN}=5V, Duty Fator=50% I_L x V_L=200(VA)

Dimensions : (Unit : mm)



P.C.B. Layout (TOP View)



S.S.R.

TS Series

D/D·D/A·Load Current:2.0~4.0A

Features

- Optically isolated
- Low On-state resistance
- Low input power consumption
- MOSFET output thyristor(VDC)

Applications

- Household appliance
- Temperature control system
- Industrial automatic control
- Lighting system
- Office appliances
- Factory appliances

Order Code:

TS D05 A20
a b c

a : Model : TS = SLIM Type
b : Input Voltage : D05 = DC5V ; D12 = DC12V ;
D24 = DC24V ; D48 = DC48V ;
c : Outpet Current : A20 = AC2.0A ; D25 = DC2.5A ; D40 = DC4.0A

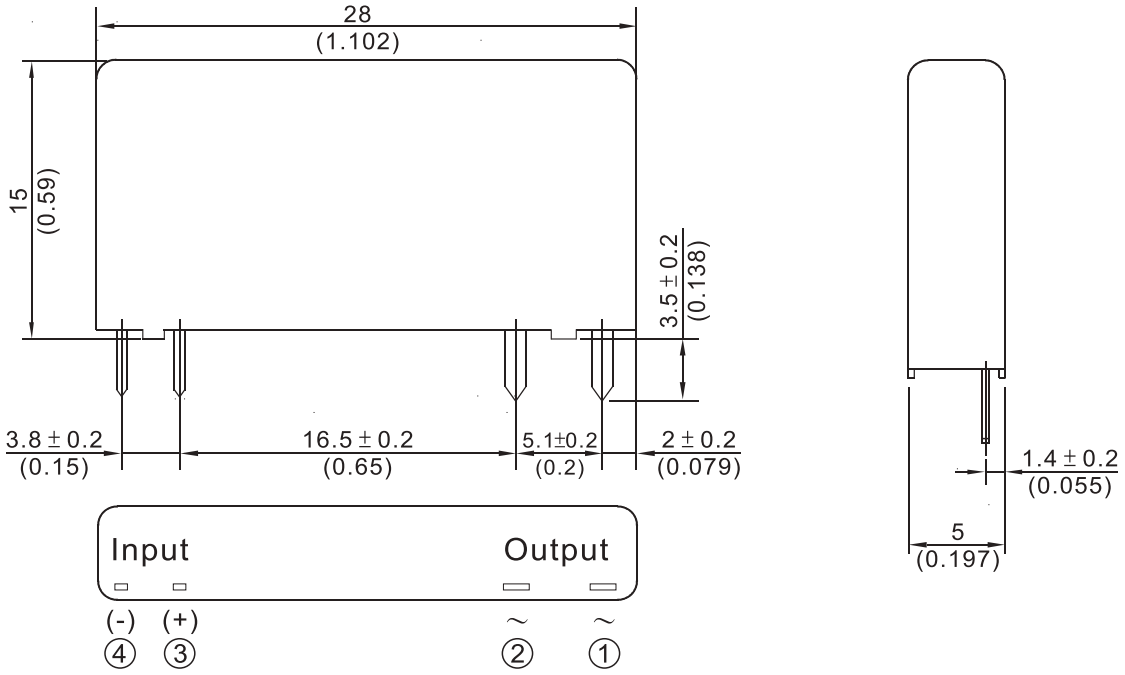
Specifications (AC Output)

Input Circuit			
Type No	**TSD05A20**	**TSD12A20**	**TSD24A20**
Nominal Voltage	5VDC	12VDC	24VDC
Control Voltage Range	3~10VDC	7~20VDC	18~30VDC
Control Current	12mA	10mA	7.7mA
Release Voltage	1VDC		
Input Internal Resistor	300Ω	1010Ω	3000Ω

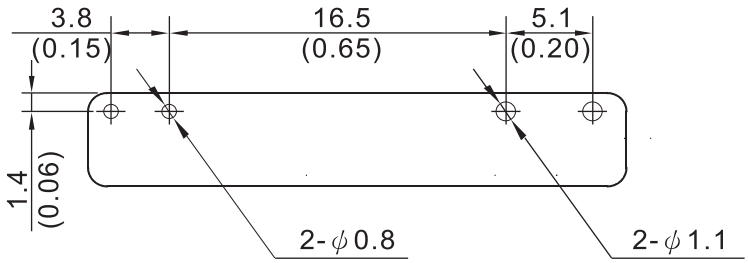
General Characteristics	
Operating Temperature Range	-20℃ ~+80℃
Storage Temperature Range	-40℃ ~+100℃
Input - Output Isolation	3.5KV rms, 1Minute (for Input-Output)
Max. Soldering Heat	260℃ (10 Sec)
Weight	4g

Output Characteristics (at 20℃)	
Load Voltage	240 Vrms
Operating Range	12~280 Vrms
Peak Voltage (Clamping Voltage)	600 V
Nominal Current	2A
Non-Repetitive Overload Current	80A
On-State Drop Voltage	1.2V
Off-State Leakage Current	<1.5mA
Min. Load Current	50mA
Turn-On Time (at Nominal Voltage)	100 μs(Random-on)/10ms(Zero-on)
Turn-Off Time (at Nominal Voltage)	10 mS
Operating Switching Frequency	47~400Hz
Off-State dv/dt	500V/ μs
RC Sunbber	10nF,100Ω

Dimensions : (Unit : mm)



P.C.B. Layout (TOP View)



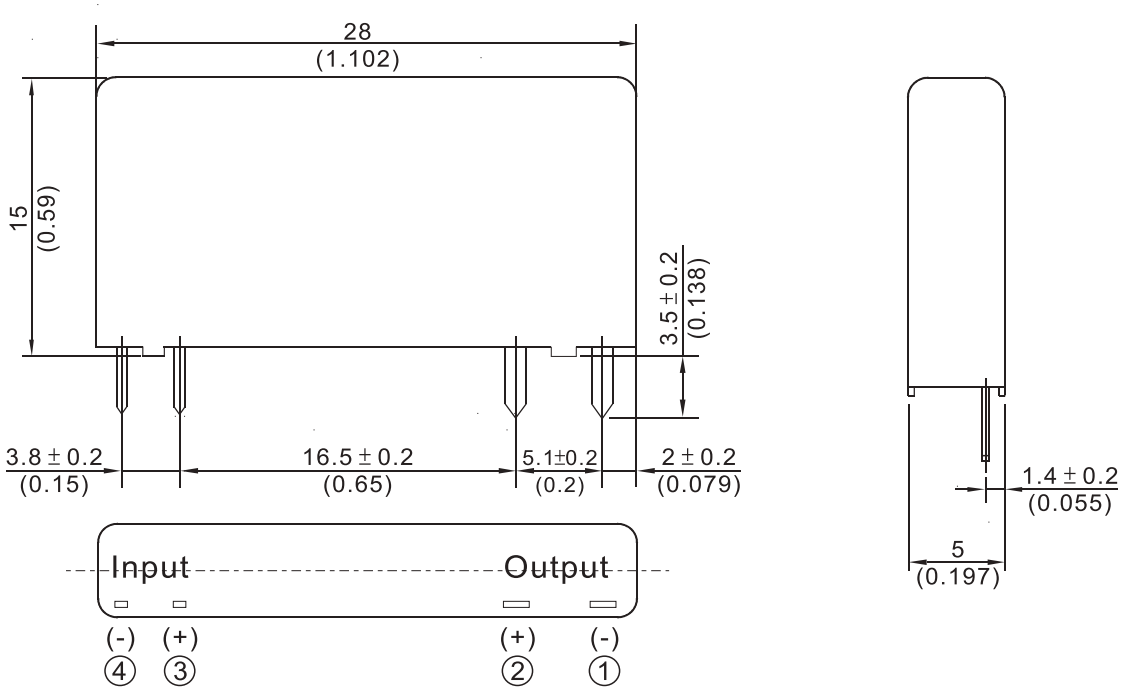
Specifications (DC Output)

Input Circuit				
Type No (2.5A/48VDC)	**TSD05D25**	**TSD12D25**	**TSD24D25**	**TSD48D25**
Nominal Voltage	5VDC	12VDC	24VDC	48VDC
Control Voltage Range	3~10VDC	7~20VDC	18~30VDC	38~58VDC
Control Current	12mA	10mA	7.7mA	4.4mA
Release Voltage	1.8V	3.6V	8.3V	8.3V
Input Internal Resistor	320Ω	1070Ω	3000Ω	10800Ω
Type No (4A/24VDC)	**TSD05D40**	**TSD12D40**	**TSD24D40**	**TSD48D40**
Nominal Voltage	5VDC	12VDC	24VDC	48VDC
Control Voltage Range	3~10VDC	7~20VDC	18~30VDC	38~58VDC
Control Current	12mA	10mA	7.7mA	4.4mA
Release Voltage	1.8V	3.6V	8.3V	8.3V
Input Internal Resistor	320Ω	1070Ω	3000Ω	10800Ω

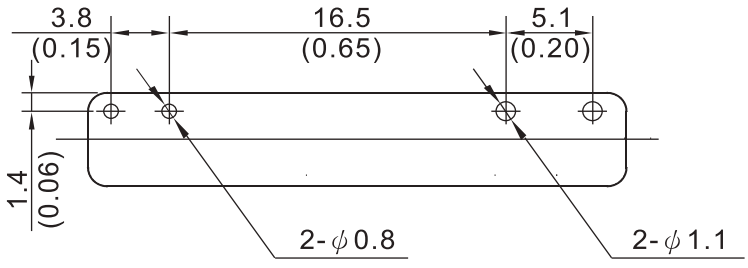
General Characteristics	
Operating Temperature Range	-20℃ ~+80℃
Storage Temperature Range	-25℃ ~+80℃
Input - Output Isolation	2.5KV rms, 1Minute (for Input-Output)
Max. Soldering Heat	260℃ (10 Sec)
Weight	4g

Output Characteristics (at 20℃)	**TSD**D25**	**TSD**D40**
Load Voltage	48V	24V
Operating Range	0~60V	0~32V
Nominal Current	2.5A	4A
Non-Repetitive Overload Current	6A	7A
On-State Drop Voltage (at IL=2A)	0.4V	0.24V
Static Output On-Resistance (at IL=2A)	200mΩ	120mΩ
Off-State Leakage Current	<1mA	<1mA
Minimum Load Current	1mA	1mA
Turn-On Time (at Nominal Voltage)	150 μs	150 μs
Turn-Off Time (at Nominal Voltage)	600 μS	600 μS
Operating Switching Frequency	10Hz	10Hz
Transient Voltage Supperessor	YES	YES
Breakdown Voltage	60V	36V
Peak Power Dissipation	600W	600W
Peak Voltage (Clamping Voltage)	100V	60V

Dimensions : (Unit : mm)



P.C.B. Layout (TOP View)



S.S.R.

TNA Series

D/A·Load Current:2.0~6.0A

Features

- Optically isolated
- Low On-state resistance
- Low input power consumption
- TTL and CMOS compatible control

Applications

- Household appliance
- Temperature control system
- Industrial automatic control
- Lighting system
- Office appliances
- Factory appliances

Order Code:

TNA X XX
a b c

a : Model : TNA = DC Input, AC Output
b : Load Voltage Range : 2 = 24 - 280VAC, 4 = 24 - 480VAC
c : MAX Load Current : 02 = 2A, 03 = 3A, 04 = 4A, 05 = 5A, 06 = 6A

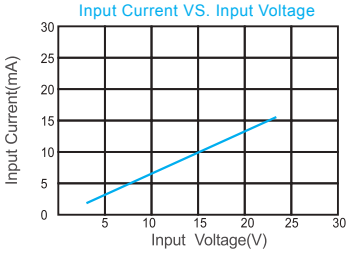
Specifications (AC Output)

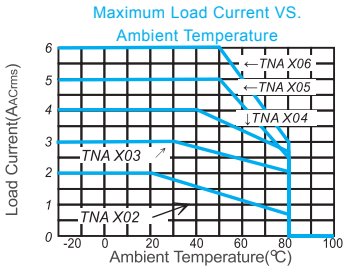
Input Circuit	
Control Voltage Range	3~32VDC
Pick-Up Voltage	3VDC MAX
Input Impedence	1.5k Ω
Must Turn-On Voltage	1VDC Max.
Max. Input Voltage	32VDC

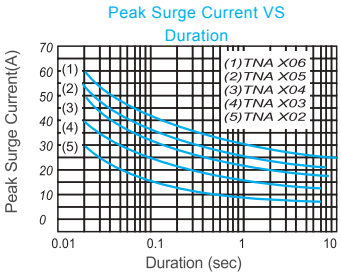
Output Characteristics (at20℃)									
Type No	202	203	204	205	206	402	404	405	406
Load Current Range (A)	2	3	4	5	6	2	4	5	6
Operating Range	24~280VAC					24~480VAC			
Non Repetitive Max. Voltage	600 Vpk					1200 Vpk			
Max. 1-CYCLE Peak Surge(A)	30	40	50	55	60	20	40	50	60
On State Drop Voltage	1.5 VAC	2 VAC							
Max. Off-State Leakage Current	5mA								
Turn - ON Time (at 50Hz)	1/2AC CYCLE								
Turn - OFF Time (at 50Hz)	1/2AC CYCLE								
Min. OFF-State dv/dt	100 V/ms			200 V/ms		500 V/ms			
Zero-On or Random-On	Zero-On								

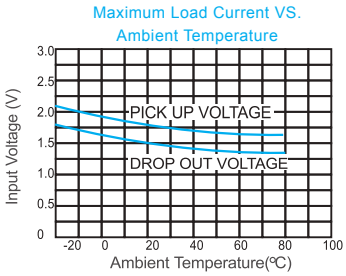
General Characteristics	
Isolation Impedence	$10^9\Omega$
Dielectric Strength Input-Output	2500 VAC
Frequency Range	47~70HZ
Max. Capacitance	15pF
Operating Temperature Range	-20℃ ~+80℃
Storage Temperature Range	-30℃ ~+100℃
Weight	12g Max.

Output Characterize









Dimensions (Unit : mm)

Bottom View

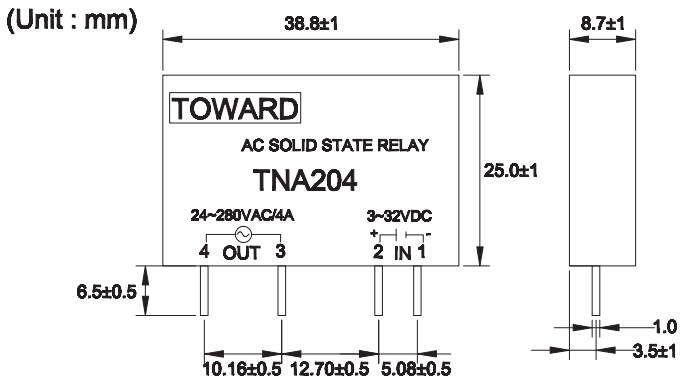
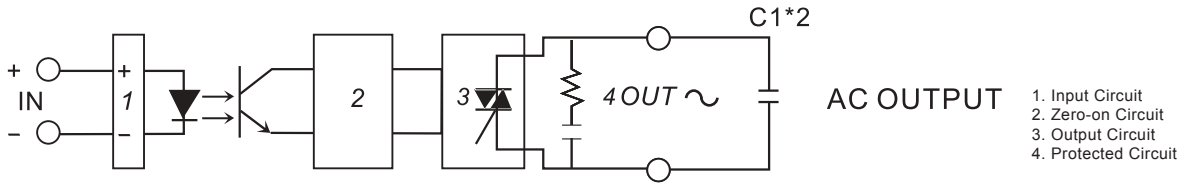


Photo - Triac



1. Input Circuit
2. Zero-on Circuit
3. Output Circuit
4. Protected Circuit

S.S.R.

TND Series

D/D·Load Current:2.0~4.0A

Features

- Optically isolated
- Low On-state resistance
- Low input power consumption
- TTL and CMOS compatible control

Applications

- Household appliance
- Temperature control system
- Industrial automatic control
- Lighting system
- Office appliances
- Factory appliances

Order Code:

TND X XX
a b c

a : Model : TND = DC Input, DC Output
b : Load Voltage Range : 0.6 = 3 - 60VDC
c : MAX Load Current : 02 = 2A, 04 = 4A

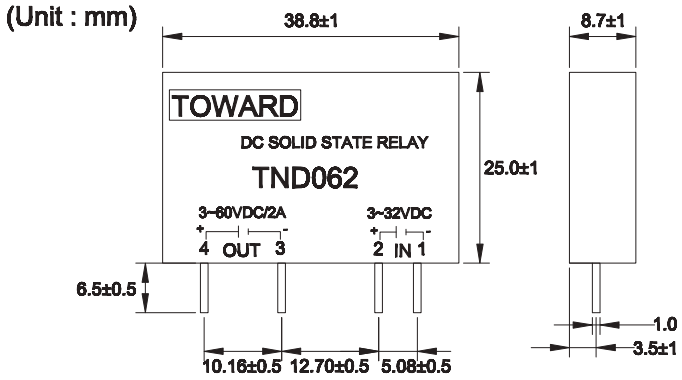
Specifications (DC Output)

Input Circuit		
Type No	TND 062	TND 064
Nominal Voltage	3 VDC	
Control Voltage Range	3~32VDC	
Input Impedence	1.5k Ω	
Min Turn-Off Voltage	1VDC	

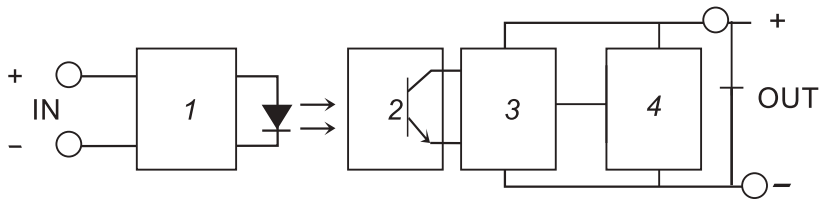
Output Circuit		
Max.Load Current	2A	4A
Nominal Voltage Range	60 VDC	
Load Voltage Range	3~60 VDC	
Max. Peak Current	10A	8.5A
Max. Off-State Leakage Current	1mA	
Max. ON-State Drop Voltage	1.2V	
Max. Turn - ON Time	2ms	
Max. Turn - OFF Time	2ms	
Min Blocking Voltage	80 VDC	
Capacitance In-Out	15 pF	
Min. OFF-State dv/dt	200V/ μ Sec	

General Characteristics		
Type No.	TND 062	TND 064
Dielectric Strength Input-Output	2500 V.r.m.s.	
Isolate Impedence	$10^9\Omega$	
Operating Temperature Range	-20℃ ~+80℃	
Storage Temperature Range	-30℃ ~+100℃	
Weight	10g Max.	12g Max.

Dimensions : (Unit : mm)



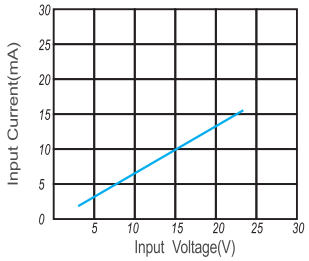
EQUIVALENT CIRCUIT



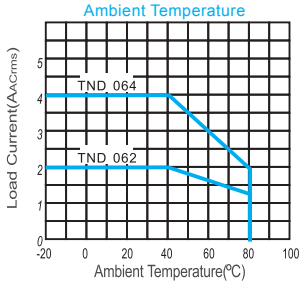
1. Input Circuit
2. Photo Detetor
3. Amplifier
4. Output Circuit

CHARACTERISTIC CURVES

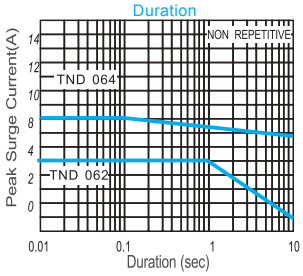
Input Current VS. Input Voltage



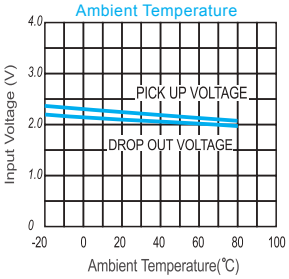
Maximum Load Current VS. Ambient Temperature



Peak Surge Current VS Duration



Maximum Load Current VS. Ambient Temperature



S.S.R.

TPA Series

D/A·Load Current : 5.0A

Features

- TTL logic circuit compatible input
- Zero voltage on
- Zero current off
- Load current 5A

Order Code:

TPA M 2 5
a b c d

a : Model : TPA = DC Input, AC Output
b : Input Voltage : M = 3~14 VDC ; H = 10~32 VDC ; L = 3~32 VDC
c : Output Voltage : 2 = 220 VAC ; 3 = 380 VAC
d : Rated Current : 5 = 5A

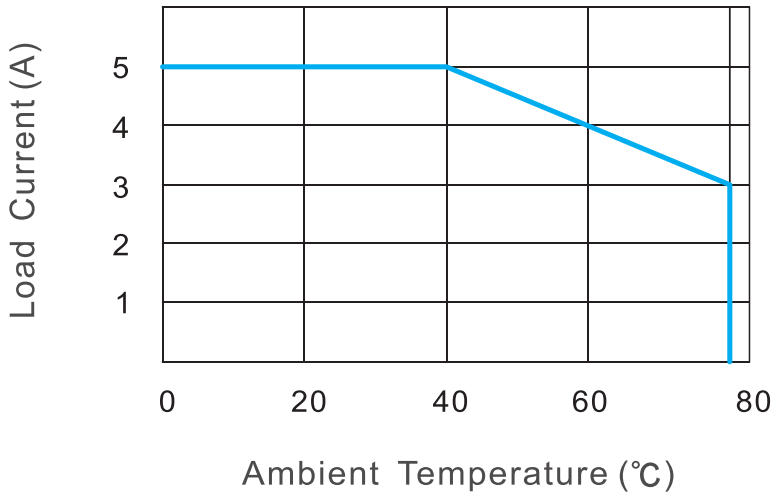
Specifications (DC Output)

Input Circuit			
Type	**TPAM*5**	**TPAH*5**	**TPAL*5**
Inputl Voltage Range	3~14 VDC	10~32 VDC	3~32 VDC
Input Current	5~25 mA	5~16 mA	5~15 mA
Min Release Voltage	1VDC	5 VDC	1VDC

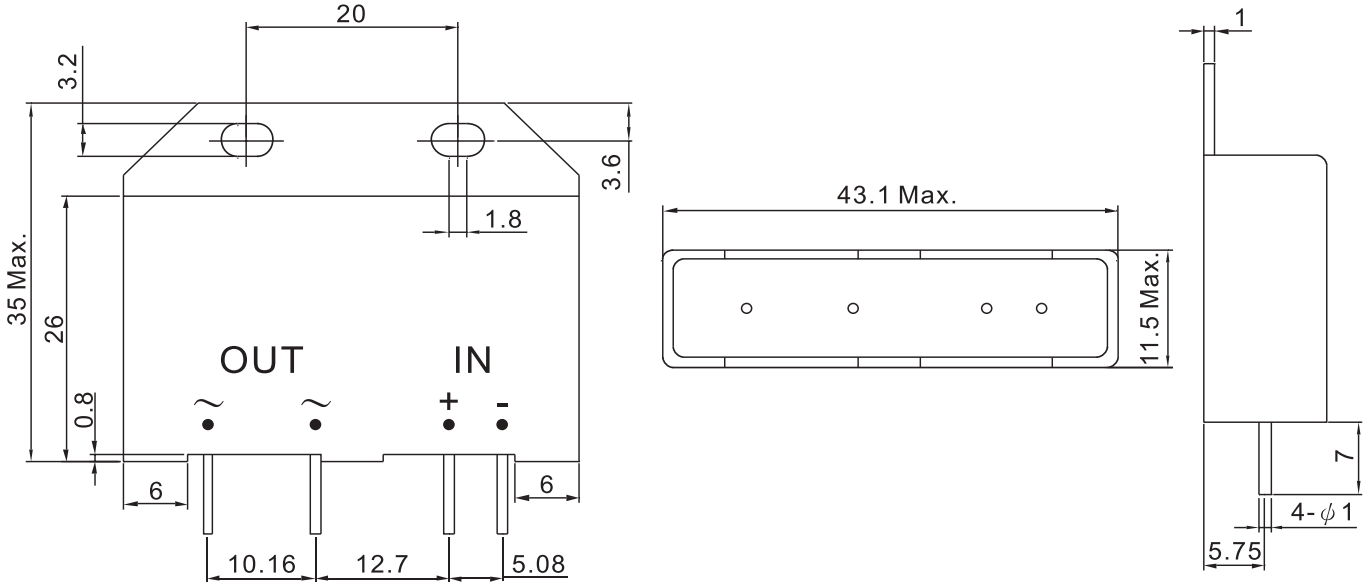
Output Characteristics(at20℃)		
Type No		**TPA*** **
Load Voltage Range	2	220 VAC
	3	380 VAC
Max. Rated Load Current Range		5A
Max. Surge Current (10ms)		50A
Transient Overvoltage	2	600Vp
	3	800Vp
Max. ON-State Drop Voltage		1.5VAC
Max. Leakage Current		5 mA
Max. Turn - ON Time		10ms
Max. Turn - OFF Time		10ms
Operate Frequency		47~70Hz
Max. Power Dissipation		1.5 W/A
Min. OFF-State dv/dt		250V/ μ S

Output Characteristics	
Min. Insulation Resistance	1000MΩ
Dielectric Strength	2000 V.r.m.s.
Operating Temperature	-30℃ ~+80℃
Storage Temperature	-40℃ ~+100℃
Unit Weight	25g Max.

DC Ouptut Characteristic



Dimensions : (Unit : mm)



S.S.R.

TPD Series | D/D·Load Current : 5.0A

Features

- DC input, DC output
- Magnetism isolated
- Epoxy flooding, aluminium bottom radiator
- Power MOSFET output

Order Code:

TPD S 0 5
a b c d

a : Model : TPD = DC Input, DC Output
b : Input Voltage : S = 3~7 VDC ; H = 10~32 VDC
c : Output Voltage : 0 = 50 VDC
d : Rated Current : 5 = 5A

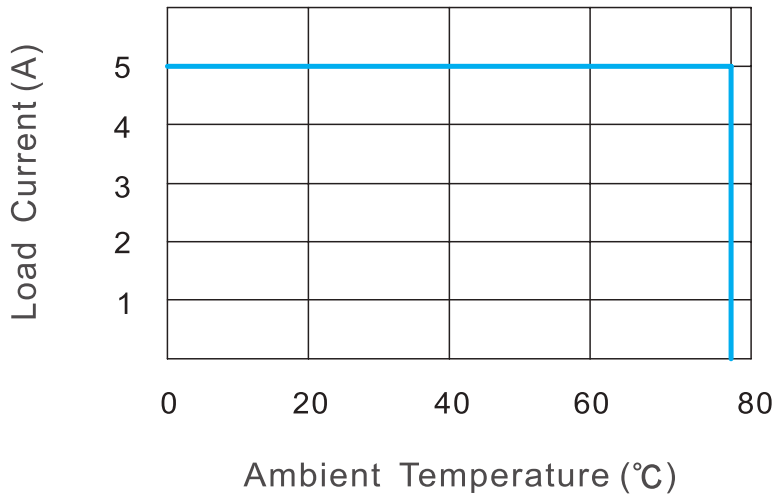
Specifications (DC Output)

Input Circuit		
Type	**TPDS05**	**TPDH05**
Inputl Voltage Range	3~7 VDC	10~32 VDC
Input Current	3~15mA	3~15mA
Min Release Voltage	1VDC	3 VDC

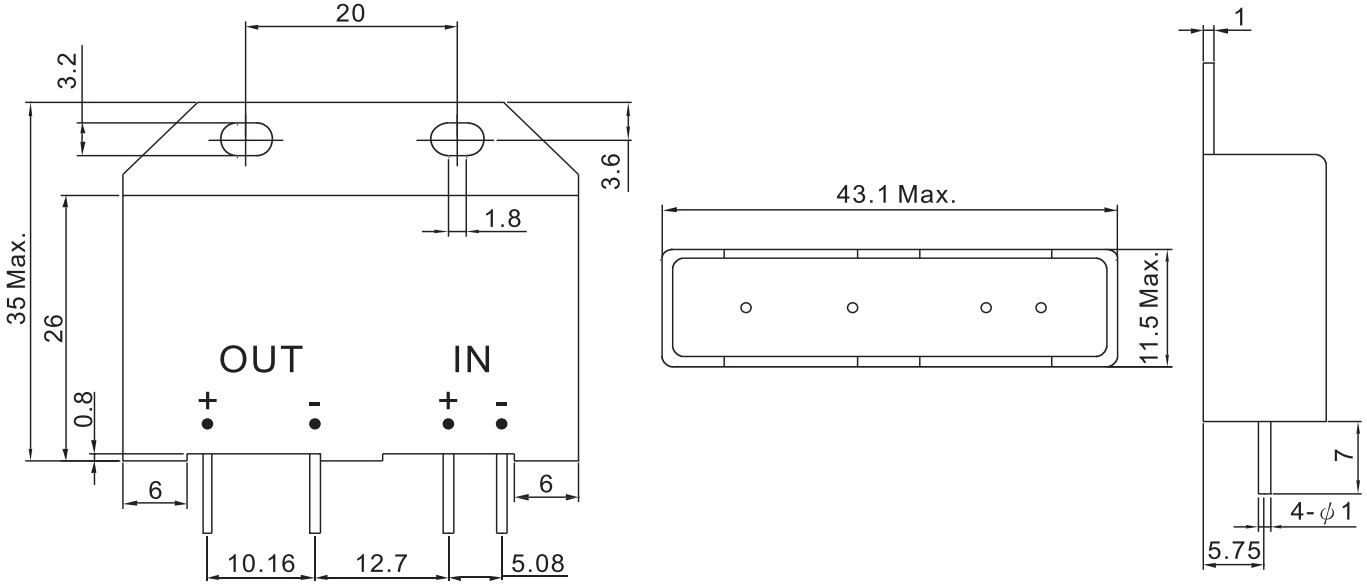
Output Characteristics(at20℃)	
Type No	**TPD**
Max. Load Voltage	50VDC
Max. Rated Load Current	5A
Max. Surge Current (10ms)	17.5A
Transient Overvoltage	55Vp
Max. ON-Resistance	0.01Ω
Max. Leakage Current	0.01mA
Max. Turn - ON Time	0.1ms
Max. Turn - OFF Time	0.5ms
Power Dissipation	0.25W

General Characteristics	
Min. Insulation Resistance	1000MΩ
Dielectric Strength	2000 V.r.m.s.
Operating Temperature	-30℃ ~+80℃
Storage Temperature	-40℃ ~+100℃
Unit Weight	25g Max.

DC Ouptut Characteristic



Dimensions : (Unit : mm)



S.S.R.

TL Series

DC Intput & AC Output 8A/16A

Features

- High isolation voltage 4000 VAC between input and output
- 600VDC peak blocking Voltage
- Be suitable for 110/220VAC power voltage
- Random-on & Zero-on types are available
- UL Recognized

Applications

- Household appliance
- Programmable controller

Order Code:

TL 2 16 R - X
a b c d e

a : Model : TL = SIP 4 Pin Package
b : Output Voltage : 2 = 240VAC
c : Output Current : 08 = 8Amp ; 16 = 16Amp
d : Turn - on Type : Nil = Zero on ; R = Random - on
e : Option : Nil = Standard, 1-9 = Special code

Absolate Maximum Rating:

Items		Symbol	Rating		Unit
			TL208(R)	TL216(R)	
Input	Forward Current	I_F	50		mA
	Peak Forward Current	I_{FP}	1		A
	Reverse Voltage	V_R	6		VAC
Output	Maximun Load Voltage	V_{omax}	280		VAC
	Off-state Output Voltage	V_{DRM}	600		VDC
	On-state Output Current	$I_{T(RMS)}$	8	16	A
	Non-repeatitive Sutge Current	I_{TSM}	80	160	A
I/O Isolation Voltage		V_{iso}	4000		VAC
Operating Temperature		T_{opr}	-25~+100		℃
Storage Temperature		T_{stg}	-35~+125		℃

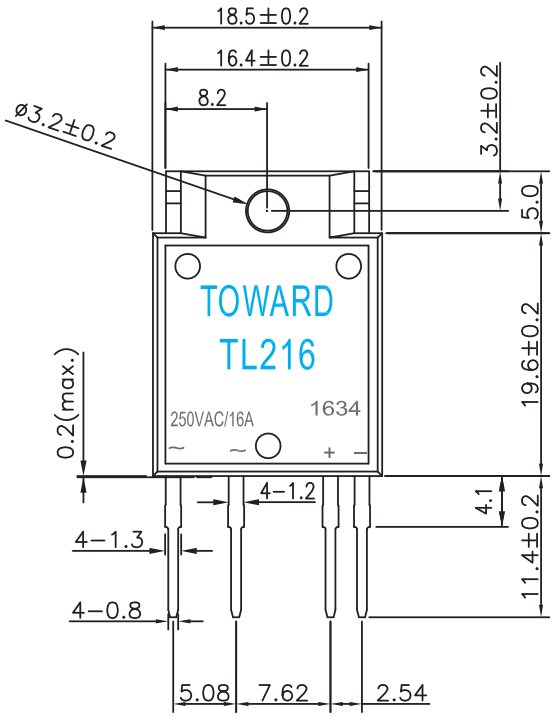
Electrical Characteristics:

Items		Symbol	MIN.	TYP.	MAX.	Unit	Conditions
Input	Forward Voltage	V_F	-	1.18	1.4	V	I_F=10mA
	Reverse Current	I_R	-	-	10	μA	V_R=5V
Output	Leakage Voltage Range	V_O	35	-	280	VAC	
	Peak Leakage Current	I_{DRM}	-	-	100	μA	V_{DRM}=600V
	On-state Voltage	V_{TM}	-	-	1.5	V	I_T=Rated IT
	Hold Current	I_H		-	50	mA	V_{DRM}=600V/$\sqrt{2}$
	Rise rate of off-state	dv/dt	30	-	-	V/μS	V_{DRM}=600V/$\sqrt{2}$
Minimum trigger current		I_{FT}	-	-	10	mA	V_D=6V
Recovery Input Voltage		VF_{OFF}	0.5	-	-	V	
I/O Isolation Resistance		R_{iso}	10^{10}	-	-	Ω	DC=500V
Turn-on Time (Random-on)		T_{ON}	-	-	1	μS	I_F=20mA
Turn-on Time (Zero-on)		T_{ON}	-	-	10	mS	-
Turn-off Time		T_{OFF}	-	-	10	mS	-

Note:Recommended trigger current is between 10mA and 20mA.

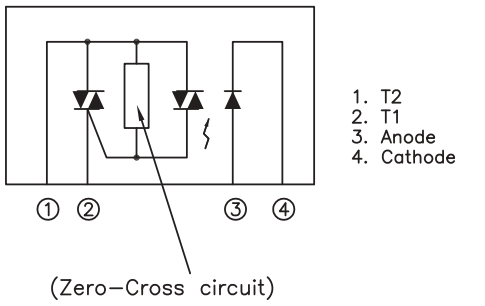
Dimensions : (Unit : mm)

Dimensions (mm)

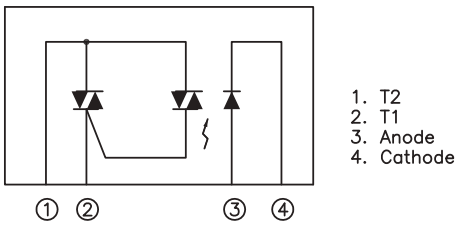


Equivalent Circuit(Top view)

Zero-On



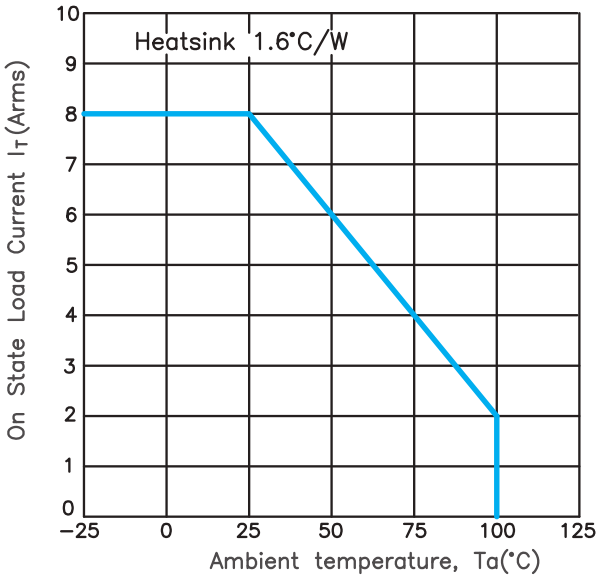
Random-On



REFERENCE DATA :

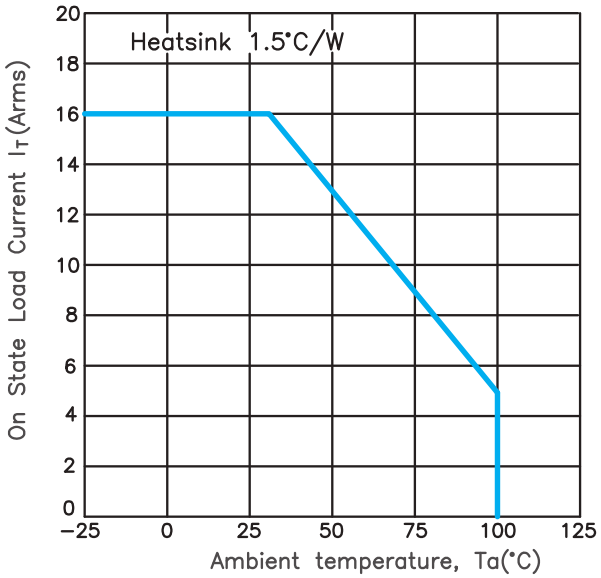
TL208

Mximun Load Current Vs. Ambient temperature

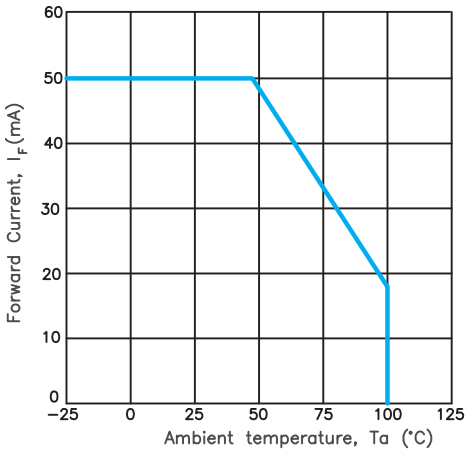


TL216

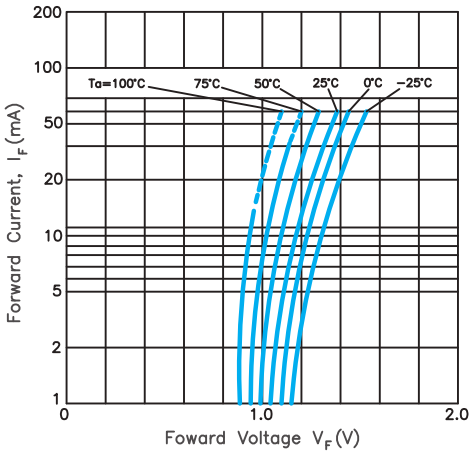
Mximun Load Current Vs. Ambient temperature



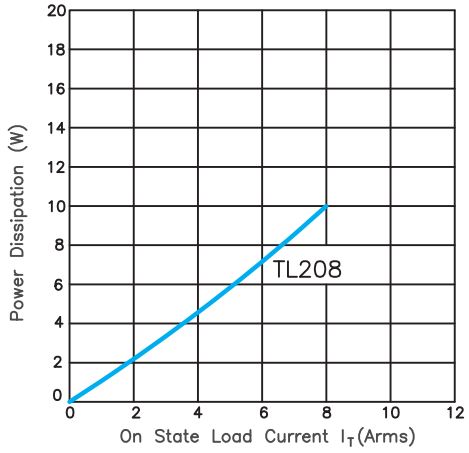
Forward Current Vs. Ambient temperature



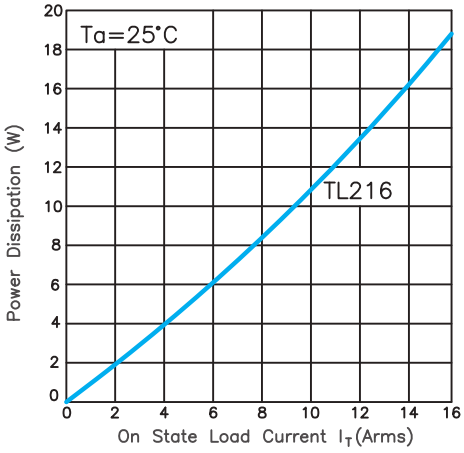
Forward Current Vs. Forward Voltage



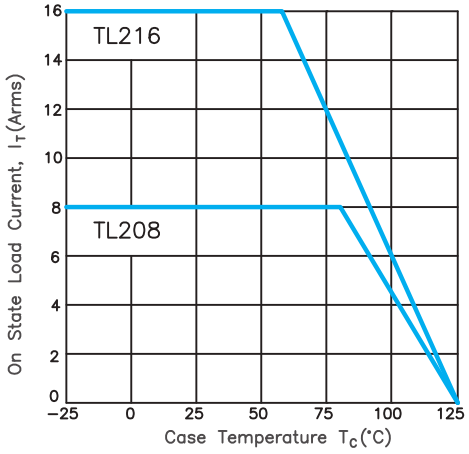
On State Power Dissipation Vs. On State Load Current



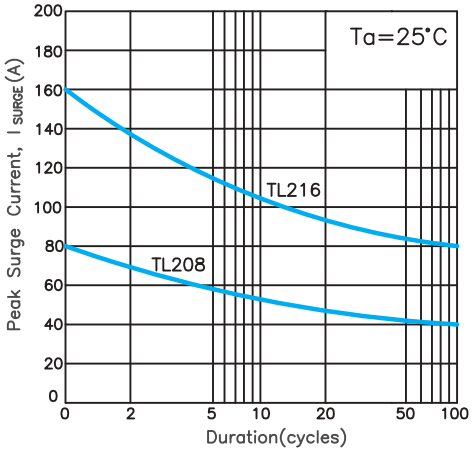
On State Power Dissipation Vs. On State Load Current



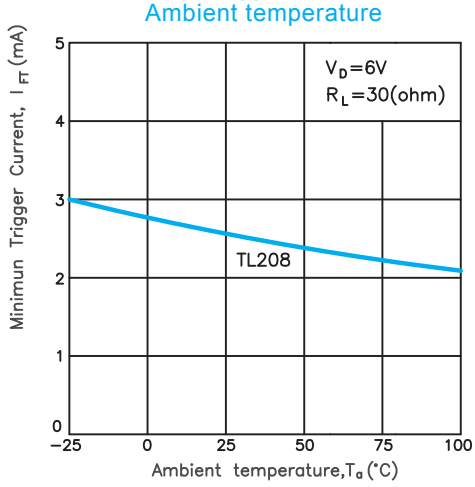
Mximun Load Current Vs. Case Temperature



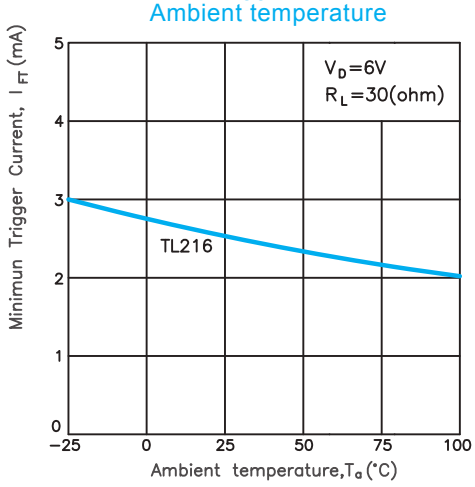
Peak Surge Current V.S Duration (Non Repective)



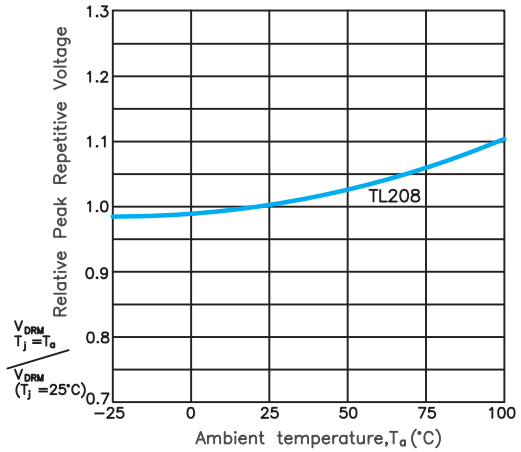
Minimun Trigger Current Vs. Ambient temperature



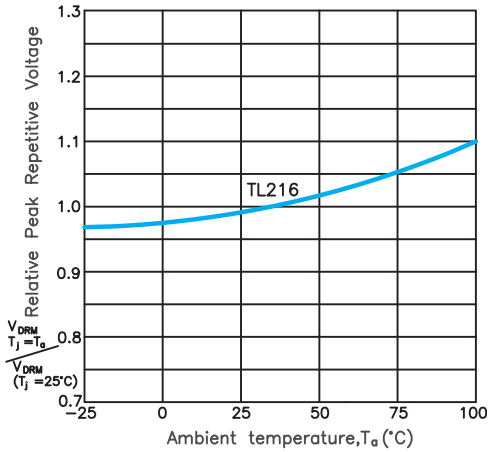
Minimun Trigger Current Vs. Ambient temperature



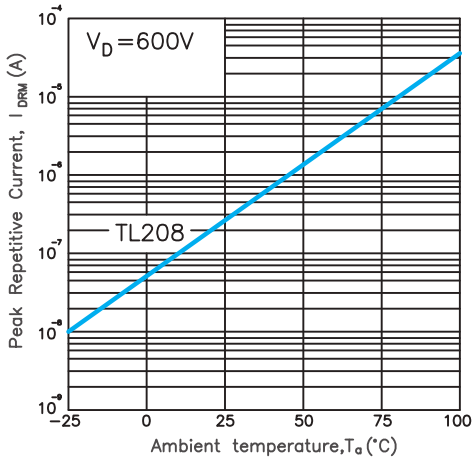
Relative Peak Repetitive Voltage Vs. Ambient Temperature



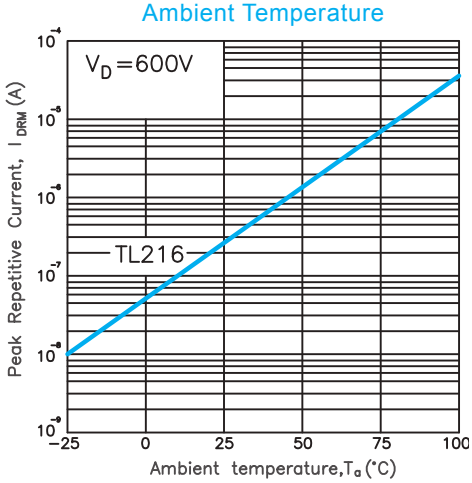
Relative Peak Repetitive Voltage Vs. Ambient Temperature



Peak Repetitive Current Vs. Ambient Temperature



Peak Repetitive Current V.S Ambient Temperature



S.S.R.

TDA/TAA Series D/A·A/A·Load Current :10~40A

Features

- Optically isolated;AC output
- Input LED indicator
- High dv/dt and high blocking voltage
- TTL and CMOS compatible control
- Zero voltage turn-on, zero current turn-off (minizes EMI/RFI)
- High surge rating allows lamp and motor load switching
- Output snubber circuit protection
- VDE recognized

Order Code:

TDA 2 25 ✻ ✻ ✻ ✻
a b c d e f g

a : Model : TDA = DC Input, AC Output ; TAA = AC Input, AC Output
b : Output Voltage : 2 = 240VAC ; 3 = 380VAC ; 4 = 480VAC
c : Rated Current : 10A, 15A, 25A, 40A
d : Turn-On Type : NIL = Zero-On
e : Special Code : NIL = With LED ; N = Without LED
f : Option : NIL = Without Safety Cover ; C = With Safety Cover
g : Terminal : NIL = Without Terminal ; T = With Terminal

Input

Type	TDA	TAA
Inputl Voltage Range	4~32 VDC	90~280 VAC
Input Current	6~17mA	7~22mA
Min Release Voltage	1VDC	20 VAC

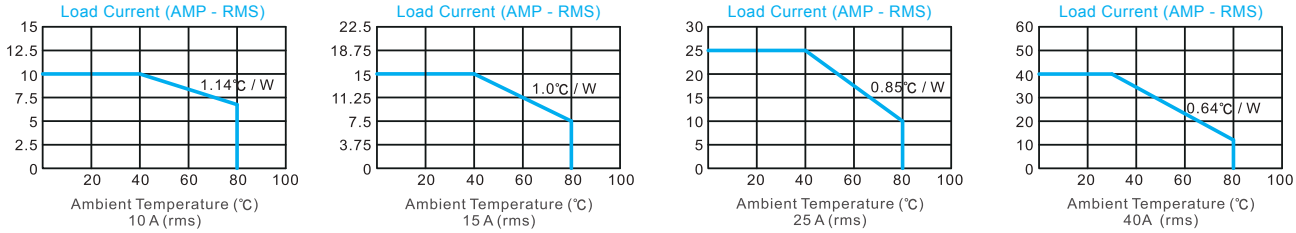
Output Load

Type NO		10A	15A	25A	40A
Max. Rated Load Current Range		10A	15A	25A	40A
Max. Surge Current (10ms)		100A	150A	250A	400A
Load Voltage Range	2	24~280 VAC			
	3	48~380 VAC			
	4	48~480 VAC			
Transient Overvoltage	2	600Vp			
	3	800Vp			
	4	1000Vp			
Max. ON-State Drop Voltage		1.8VAC			
Max. Leakage Current		10 mA			
Max. Turn - ON Time		Zero-on:10ms			
Max. Turn - OFF Time		30ms			
Operate Frequency		47~70Hz			
Max. Power Dissipation		2W/A			
Min. OFF-State dv/dt		250V/ μS			

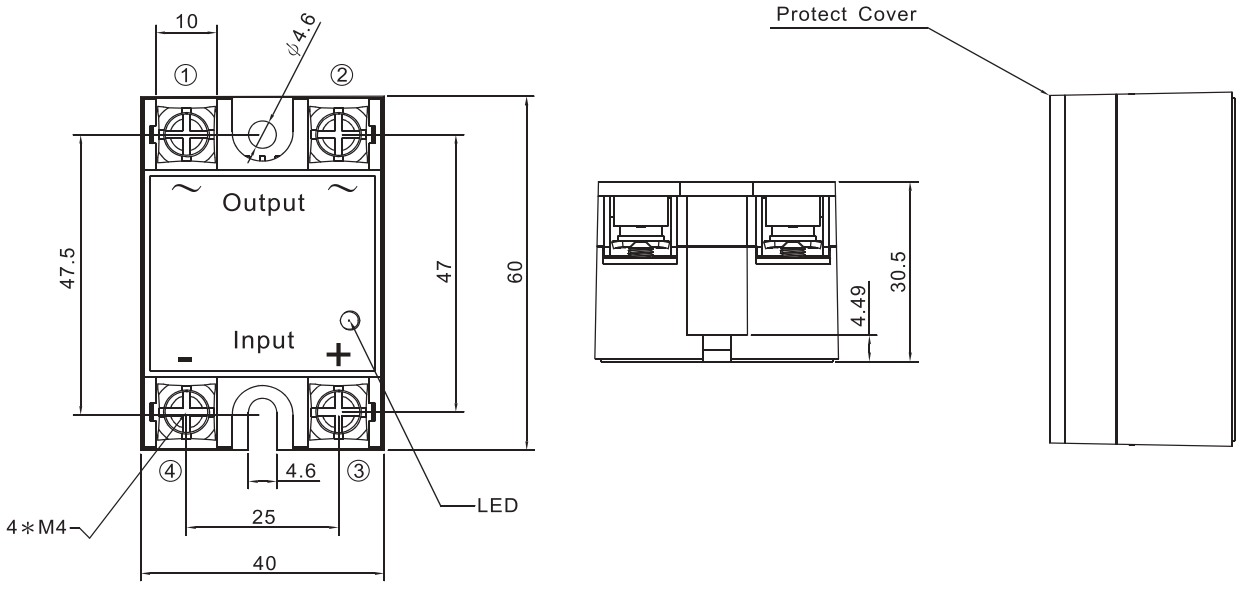
General Rating

Min. Insulation Resistance	1000MΩ
Insulation Between Input-Output	3500 VAC
Insulation Input-Output To Case	2000 VAC
Operating Temperature	-30℃ ~+80℃
Storage Temperature	-40℃ ~+100℃
Unit Weight	Approx 120g

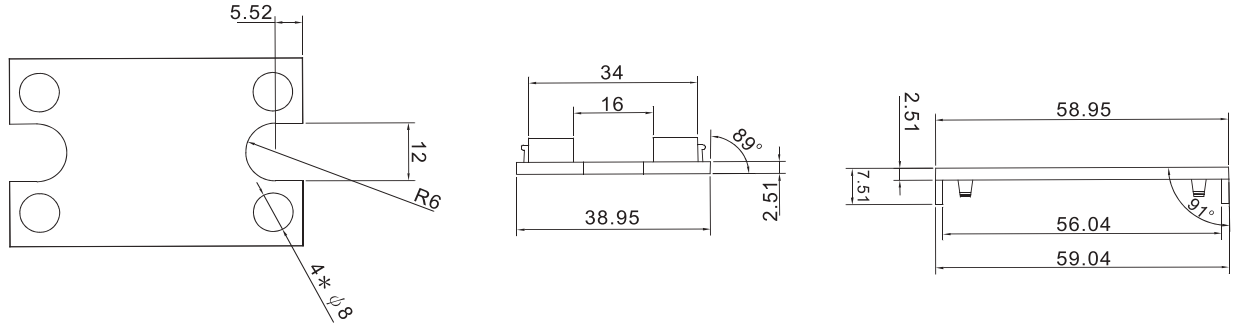
Load Current Derating Curve



Dimensions : (Unit : mm)



Protect Cover



S.S.R.

TDD Series

D/D·Load Current :15~40A

Features

- Optically isolated;DC output
- Input LED indicator
- High dv/dt and high blocking voltage
- TTL and CMOS compatible control
- High surge rating allows lamp and motor load switching
- MOSFET output

Order Code:

TDD 1 40 ✻ ✻
a b c d e

a : Model : TDD = DC Input, DC Output
b : Output Voltage : 1 = 100VDC ; 2 = 200VDC
c : Rated Current : 15A, 25A, 40A
d : Special Code : NIL - With LED ; N = Without LED
e : Option : NIL = Without Safety Cover ; C = With Safety Cover

Input

Type	15A	25A	40A
Inputl Voltage Range	4~32 VDC		
Input Current	16~27mA		
Max Operate Voltage	4VDC		
Min Release Voltage	1VDC		

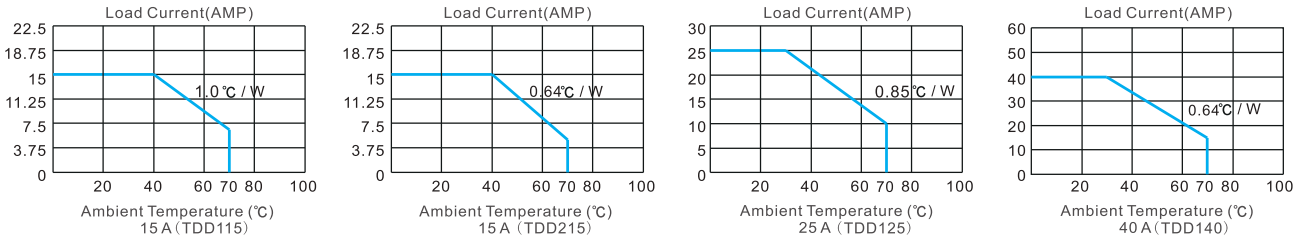
Output Load

Type NO		15A	25A	40A
Load Current Range	100VDC	5~100VDC		
	200VDC	5~200VDC		
Max. Rated Load Current Range		15A	25A	40A
Max. Surge Current (100ms)	100VDC	60	80	120
	200VDC	60	-	-
ON-Resistance(Ω)(Max.)	100VDC	0.12	0.06	0.04
	200VDC	0.12	-	-
Max. Leakage Current		10 μA		
Max. Turn - ON Time		3ms		
Max. Turn - OFF Time		3ms		

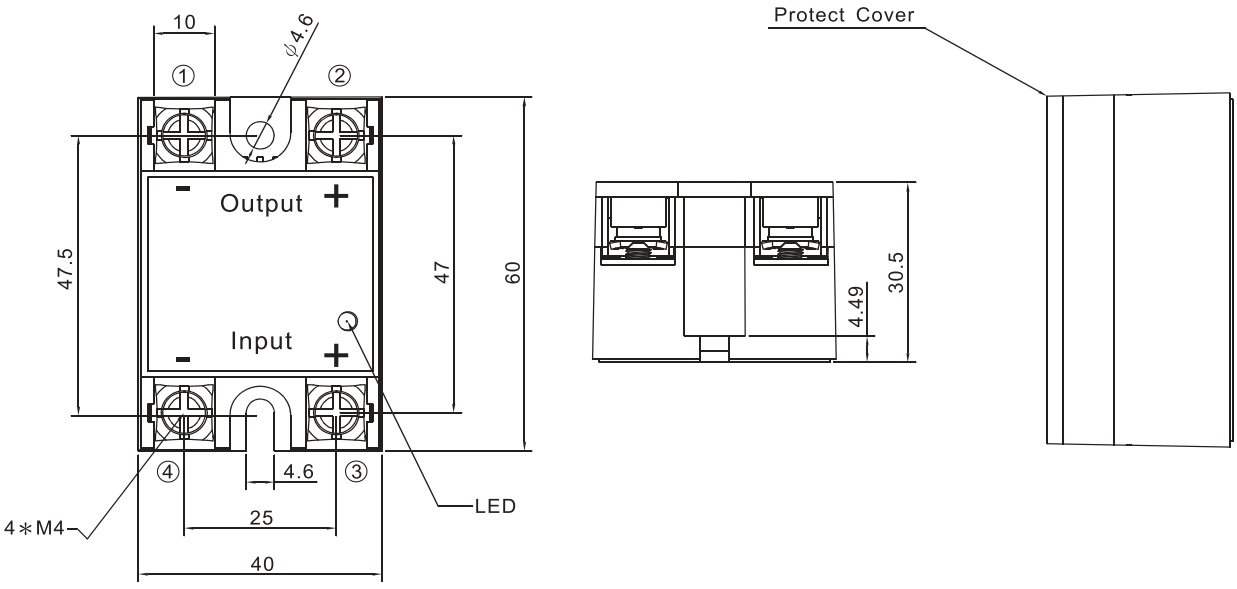
General Rating

Min. Insulation Resistance	1000MΩ
Insulation Between Input-Output	3500 VAC
Operating Temperature	-30℃ ~+70℃
Storage Temperature	-40℃ ~+100℃
Unit Weight	Approx 120g

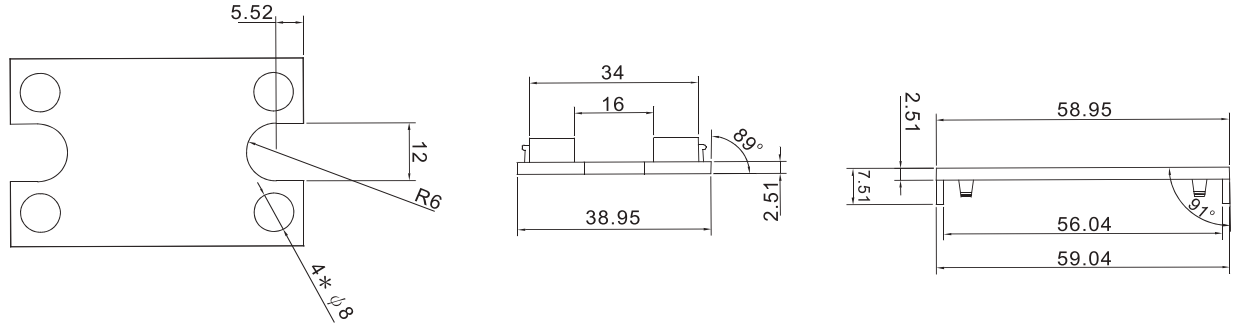
Load Current Derating Curve



Dimensions : (Unit : mm)



Protect Cover



S.S.R.

TDB Series

D/A·Normal Close Type·Load Current :10~40A

Features

- Optically isolated;AC output;Normal Close type
- Input LED indicator
- High dv/dt and high blocking voltage
- TTL and CMOS compatible control
- Zero current turn-off (minizes EMI/RFI)
- High surge rating allows lamp and motor load switching
- Output snubber circuit protection

Order Code:

TDB 2 25 R ✳ ✳
a b c d e f

a : Model : TDB = DC Input, AC Output ; Normal close type
b : Output Voltage : 2 = 240VAC
c : Rated Current : 10A, 15A, 25A, 40A
d : Turn-On Type : NIL = Zero-On ; R = Random-On
e : Special Code : NIL = With LED ; N = Without LED
f : Option : NIL = Without Safety Cover ; C = With Safety Cover

Input

Type	TDB
Inputl Voltage Range	4~32 VDC
Input Current	1.5~4.0mA
Min Release Voltage	1VDC

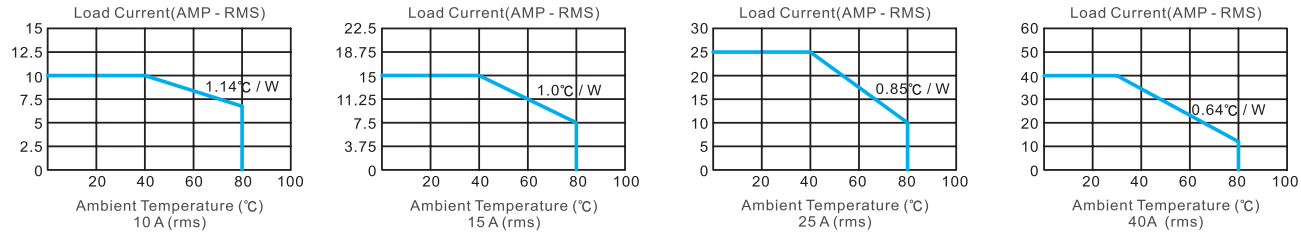
Output Load

Type NO	10A	15A	25A	40A
Max. Rated Load Current Range	10A	15A	25A	40A
Max. Surge Current (10ms)	100A	150A	250A	400A
Load Voltage Range	24~280 VAC			
Transient Overvoltage	600Vp			
Max. ON-State Drop Voltage	1.6VAC			
Max. Leakage Current	10 mA			
Max. Turn - ON Time	Random-on:1ms		Zero-on:10ms	
Max. Turn - OFF Time	10ms			
Operate Frequency	47~70Hz			
Max. Power Dissipation	2W/A			
Min. OFF-State dv/dt	250V/ μS			

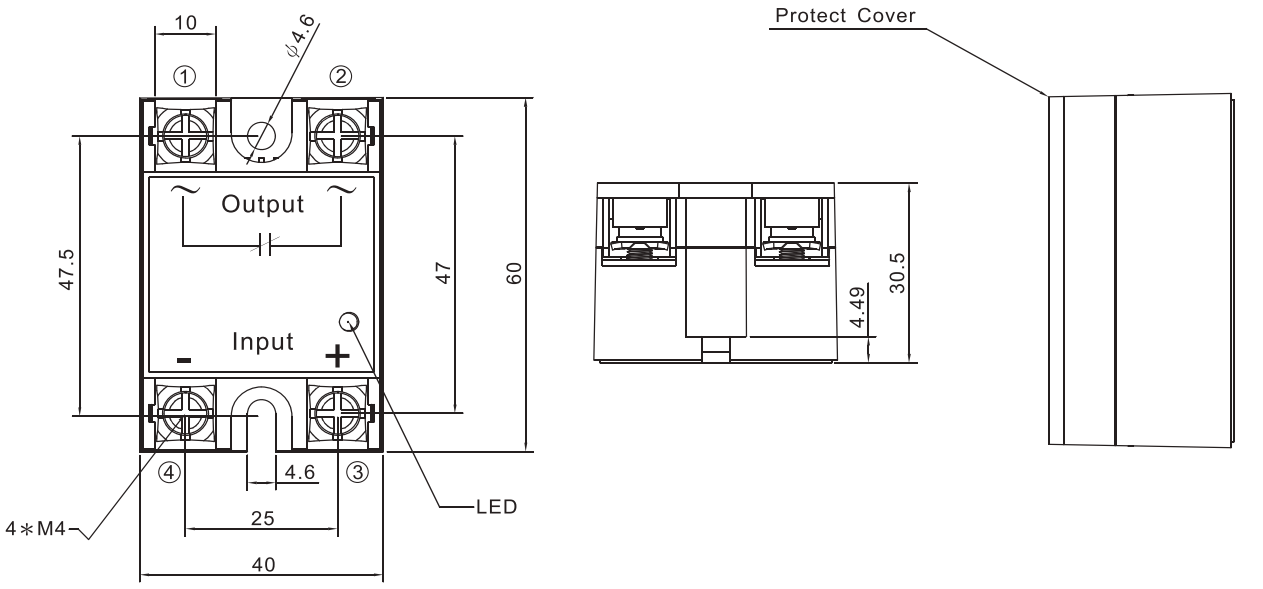
General Rating

Min. Insulation Resistance	1000MΩ
Insulation Between Input-Output	3500 VAC
Insulation Input-Output To Case	2000 VAC
Operating Temperature	-30℃ ~+80℃
Storage Temperature	-40℃ ~+100℃
Unit Weight	Approx 120g

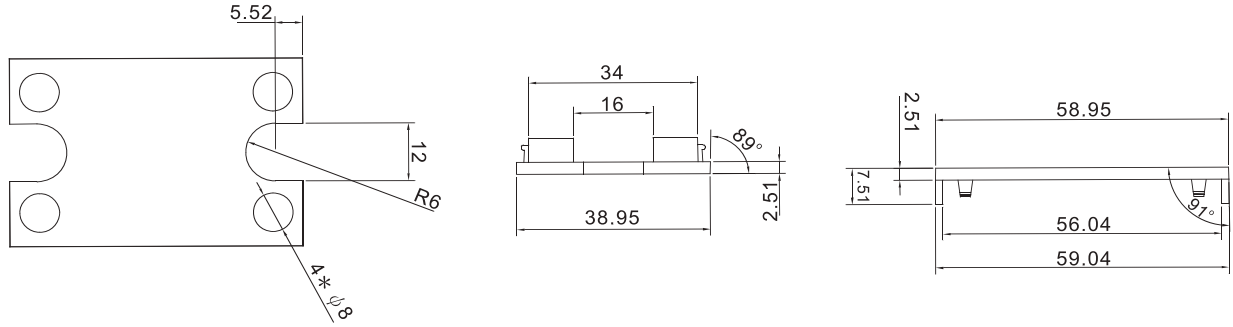
Load Current Derating Curve



Dimensions : (Unit : mm)



Protect Cover



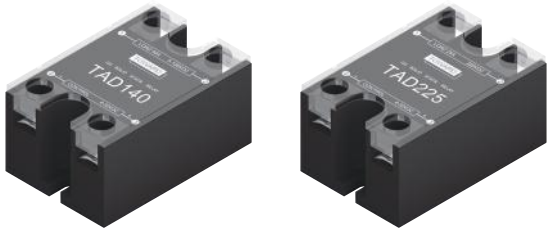
S.S.R.

TAD Series

A/D·Load Current :10~40A

Features

- Optically isolated;AC output;DC output
- Input LED indicator
- High dv/dt and high blocking voltage
- MOSFET output



Order Code:

TAD 2 25 ✻ ✻
a b c d e

a : Model : TAD = AC Input, DC Output
b : Output Voltage : 1 = 100VDC ; 2 = 200VDC
c : Rated Current : 10A, 15A, 25A, 40A
d : Special Code : NIL - With LED ; N = Without LED
e : Option : NIL = Without Safety Cover ; C = With Safety Cover

Input

Type	10A	15A	25A	40A
Inputl Voltage Range	90~280 VAC			
Input Current	1.0~7.0mA			
Max Operate Voltage	90VAC			
Min Release Voltage	20VDC			

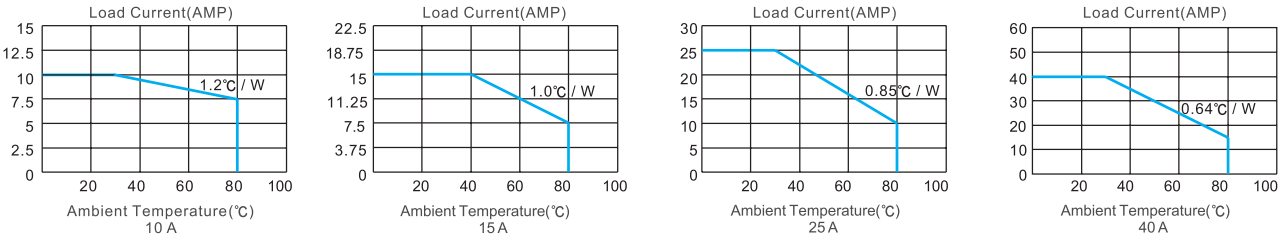
Output Load

Type NO		10A	15A	25A	40A
Load Current Range (VAC)	100VDC	5~100VDC			
	200VDC	5~200VDC			
Max. Rated Load Current Range		10A	15A	25A	40A
Max. Surge Current (100ms)	100VDC	30	60	80	120
	200VDC	30	60	80	-
ON-Resistance(Ω)(Max.)	100VDC	0.20	0.12	0.06	0.05
	200VDC	0.20	0.12	0.06	-
Max. Leakage Current		10 μA			
Max. Turn - ON Time		15ms			
Max. Turn - OFF Time		30ms			

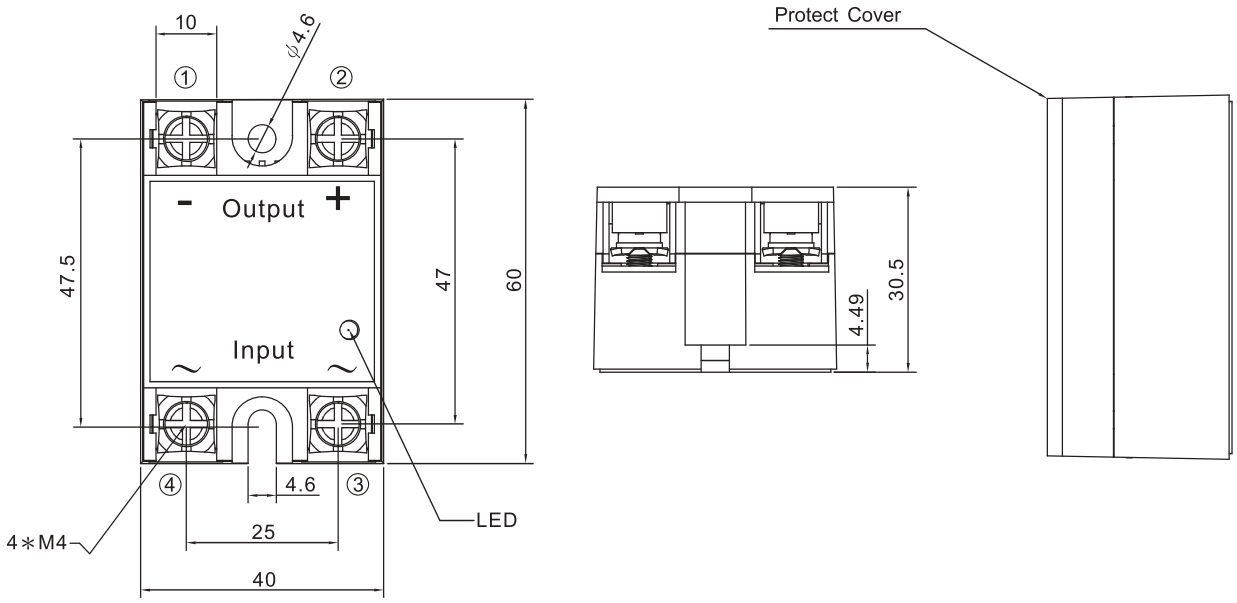
General Rating

Min. Insulation Resistance	1000MΩ(Input / Output)
Insulation Between Input-Output	2500 VAC (Input / Output)
Operating Temperature	-30℃ ~+80℃
Storage Temperature	-40℃ ~+100℃
Unit Weight	Approx 120g

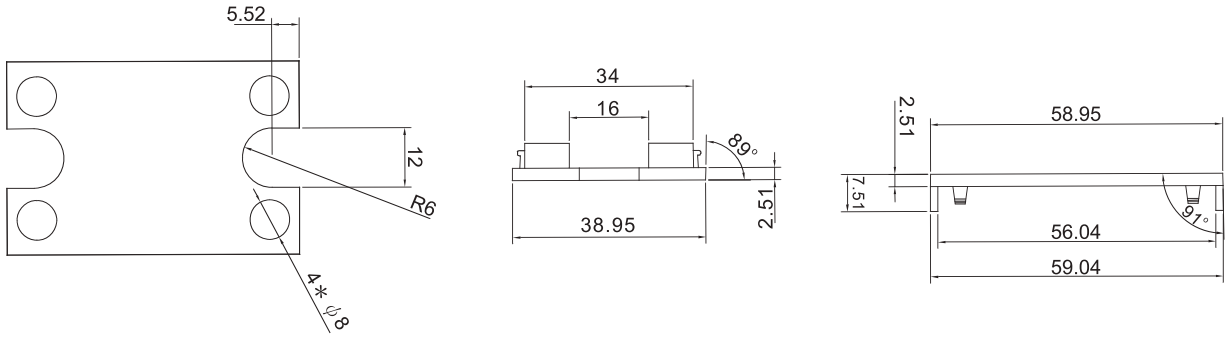
Load Current Derating Curve



Dimensions : (Unit : mm)



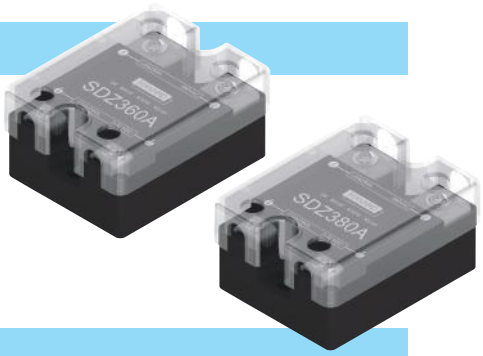
Protect Cover



S.S.R.

SDZ / SAZ (10-80A)

D/A·A/A·Load Current:10~80A



Features

- Optically isolated;AC output
- Input LED indicator
- High dv/dt and high blocking voltage
- TTL and CMOS compatible control
- Zero voltage turn-on, zero current turn-off (minizes EMI/RFI)
- High surge rating allows lamp and motor load switching
- Output snubber circuit protection

Order Code:

SDZ 3 80A ✻ ✻ ✻
a b c d e f

a : Model : SDZ = DC Input, AC Output ; SAZ = AC input, AC output
b : Output Voltage : 2 = 240VAC ; 3 = 380 VAC ; 6 = 600 VAC
c : Rated Current : 10A, 15A, 20A, 25A, 40A, 50A, 60A, 80A
d : Turn - On Type : NIL = Zero - On ; R = Random - On
e : Special Code : NIL = With LED ; N = Without LED
f : Option : NIL = Without Safety Cover ; C = With Safety Cover

Input

Type	SDZ	SAZ
Inputl Voltage Range	3~32 VDC	90~280 VAC
Input Current	5~15mA	3~20mA
Min Release Voltage	1VDC	25VAC

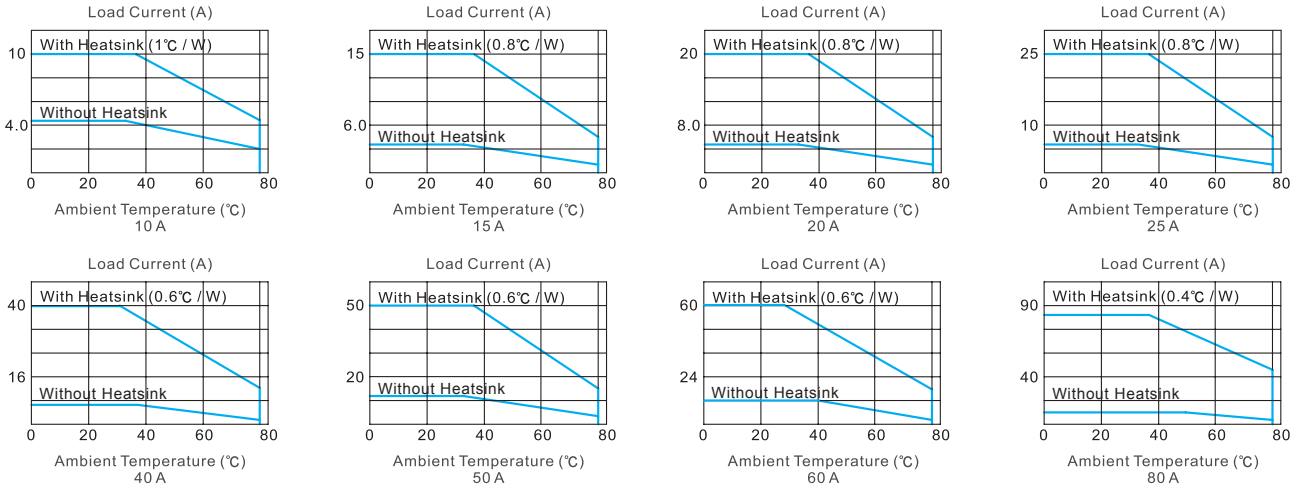
Output Load

Type NO		10A	15A	20A	25A	40A	50A	60A	80A
Max. Rated Load Current Range		10A	15A	20A	25A	40A	50A	60A	80A
Max. Surge Current (10ms)		100A	150A	200A	250A	400A	520A	600A	840A
Load Voltage Range (VAC)	2	24~280	24~280	24~280	24~280	24~280	-	-	-
	3	48~400	48~400	48~400	48~400	48~400	48~400	48~400	48~400
	6	-	-	-	-	-	48~600	-	-
Transient Overvoltage (Vp)	2	600	600	600	600	600	-	-	-
	3	800	800	800	800	800	1200	800	800
	6	-	-	-	-	-	1200	-	-
Max. ON-State Drop Voltage (VAC)		2	2	2	2	2	1.8	2	2
Max. Leakage Current		10mA							
Max. Turn - ON Time		10ms							
Max. Turn - OFF Time		10ms							
Operate Frequency		47~70Hz							
Max. Power Dissipation		2 W/A	2 W/A	2 W/A	2 W/A	2 W/A	1.8 W/A	2 W/A	2 W/A
Min. OFF-State dv/dt		200V/ μ S							
Turn - On Type		Zero-on							

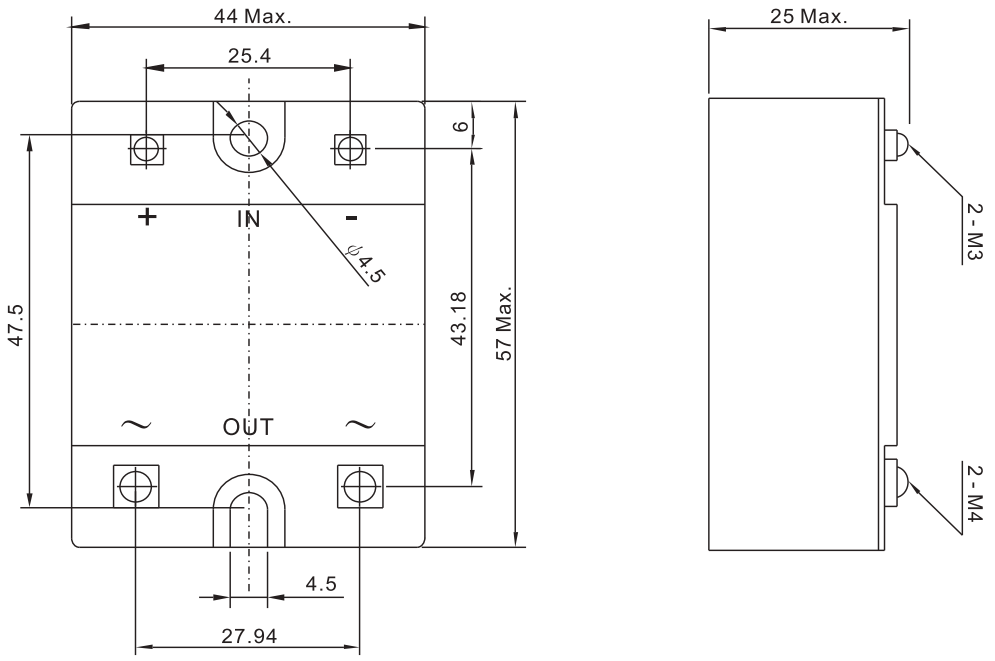
General Rating

Min. Insulation Resistance	1000MΩ
Insulation Between Input-Output	2000 VAC
Insulation Input-Output To Case	2000 VAC
Operating Temperature	-30℃ ~+80℃
Storage Temperature	-40℃ ~+100℃
Unit Weight	Approx 120g

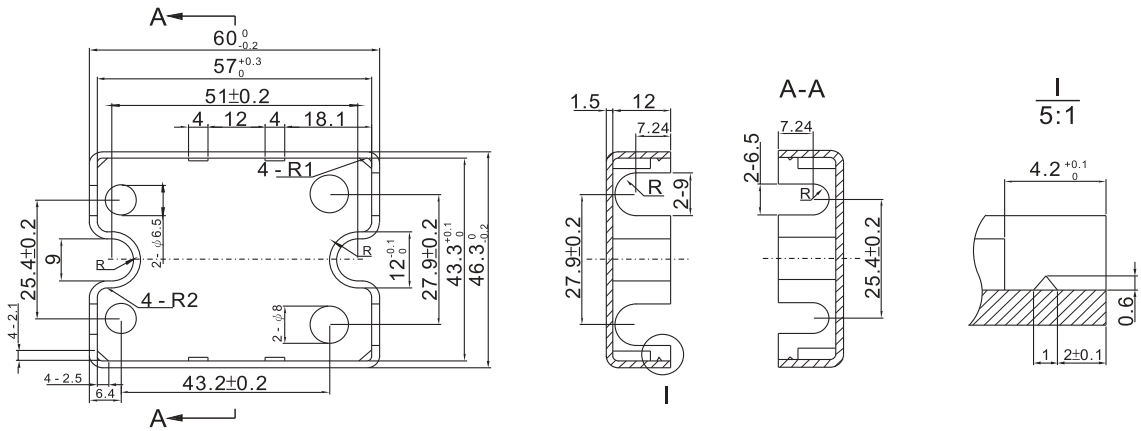
Load Current Derating Curve



Dimensions : (Unit : mm)



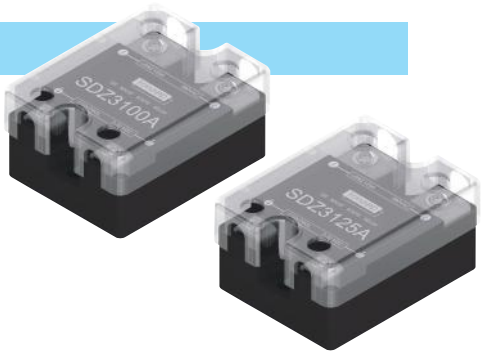
Safety Cover



S.S.R.

SDZ / SAZ (100-125A)

D/A·Load Current:100~125A



Features

- Optically isolated;AC output
- Input LED indicator
- High dv/dt and high blocking voltage
- TTL and CMOS compatible control
- Zero voltage turn-on, zero current turn-off (minizes EMI/RFI)
- High surge rating allows lamp and motor load switching
- Output snubber circuit protection

Order Code:

SDZ 3 100A ✻ ✻
a b c d e

a : Model : SDZ = DC Input, AC Output ; SAZ = AC input, AC output
b : Output Voltage : 3 = 380 VAC
c : Rated Current : 100A, 125A
d : Turn-On Type : NIL = Zero - On ; R = Random - On
e : Special Code : NIL = With LED ; N = Without LED

Input

Type	SDZ	SAZ
Inputl Voltage Range	3~32 VDC	90~280 VAC
Input Current	5~15mA	3~20mA
Min Release Voltage	1VDC	25VAC

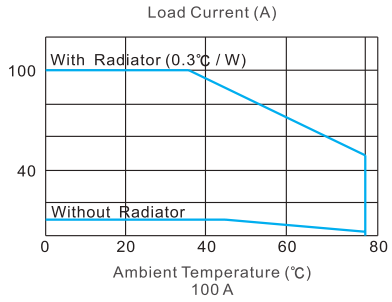
Output Load

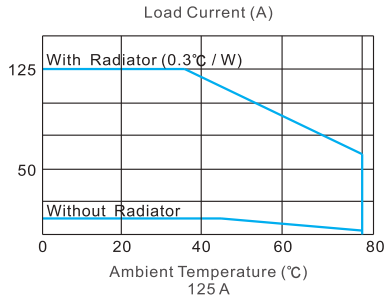
Type NO	100A	125A
Max. Rated Load Current Range	100A	125A
Max. Surge Current (10ms)	1000A	1200A
Load Voltage Range	380VAC	
Transient Overvoltage	1200Vp	
Max. ON-State Drop Voltage	2VAC	
Max. Leakage Current	10mA	
Max. Turn - ON Time	10ms (Zero-on)	
Max. Turn - OFF Time	10ms	
Operate Frequency	47~70Hz	
Max. Power Dissipation	2 W/A	
Min. OFF-State dv/dt	200V/ μ S	

General Rating

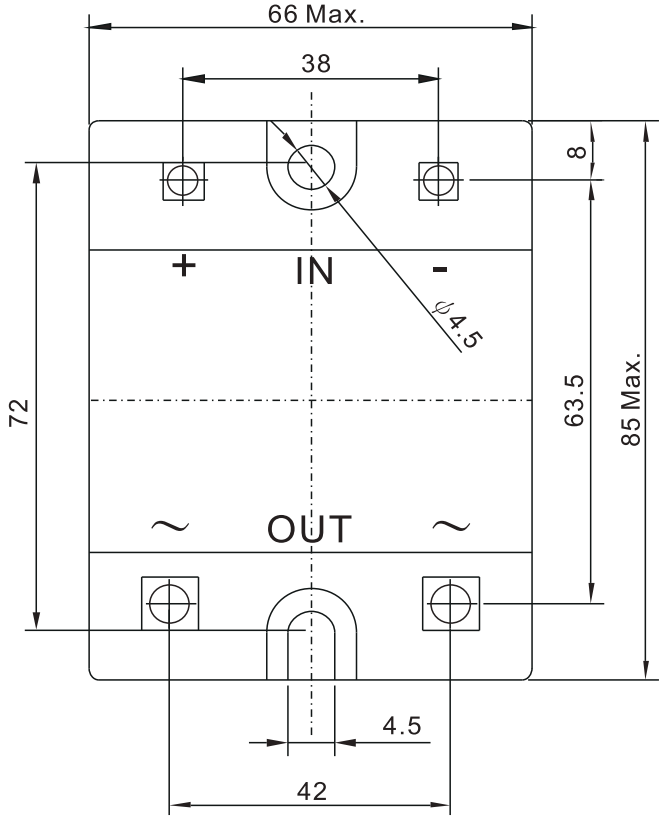
Min. Insulation Resistance	1000MΩ
Insulation Between Input-Output	2000 VAC
Insulation Input-Output To Case	2000 VAC
Operating Temperature	-30℃ ~+80℃
Storage Temperature	-40℃ ~+100℃
Unit Weight	Approx 320g

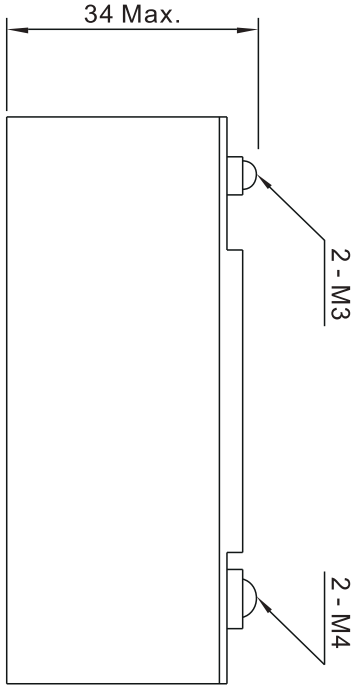
Load Current Derating Curve





Dimensions : (Unit : mm)





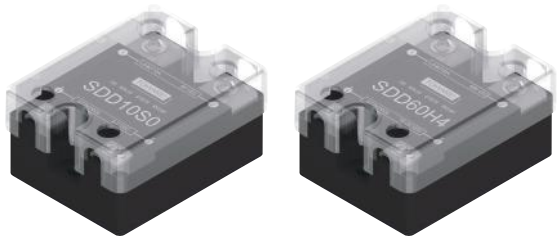
S.S.R.

SDD Series

D/D·Load Current :10~80A

Features

- Magnetism isolated;DC output
- Input LED indicator
- High dv/dt and high blocking voltage
- TTL and CMOS compatible control
- High surge rating allows lamp and motor load switching
- MOSFET/IGBT output



Order Code:

SDD 10 S 0 ＊ ＊
a b c d e f

a : Model : SDD = DC Input, DC Output
b : Rated Current : 10A, 20A, 35A, 60A, 80A
c : Input Voltage : S = 4~7 VDC ; H = 10~32 VDC
d : Output Voltage : 0 = 50/80 VDC ; 2 = 220 VDC ; 4 = 400 VDC
e : Special Code : NIL = With LED ; N = Without LED
f : Option : NIL = With Safety Cover ; C = Without Safety Cover

Input

Type		10A-60A	80A
Inputl Voltage Range	S	4~7 VDC	4~7 VDC
	H	10~32 VDC	10~32 VDC
Max. Pick - Up Voltagre	S	4V	4V
	H	10V	10V
Max. Input Current		20mA	20mA
Min. Release Voltage	S	1VDC	1VDC
	H	4VDC	2VDC

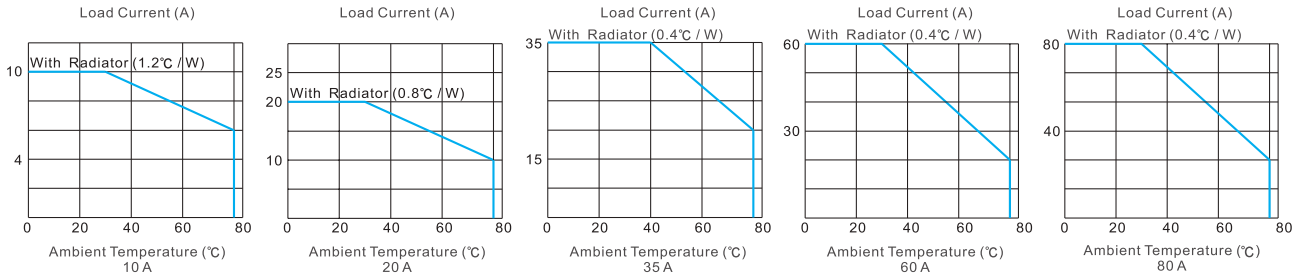
Output Load

Type NO		10A	20A	35A	60A	80A
Load Voltage Range(VDC)	0	50	50	50	50	80
	2	220	220	220	-	-
	4	400	400	400	400	-
Max. Rated Load Current(A)		10	20	35	60	80
Max. Surge Current (100ms)	0	50	60	80	120	150
	2	40	40	60	-	-
	4	40	80	120	160	-
Transient Overvoltage(Vp)	0	55	55	55	55	100
	2	400	500	500	-	-
	4	500	600	600	600	-
ON-Resistance(Ω) Or Drop Voltage(V)	0	0.05Ω	0.02Ω	0.01Ω	0.01Ω	0.5VDC
	2	0.1Ω	0.1Ω	0.1Ω	-	-
	4	0.12Ω	2VDC	2VDC	2VDC	-
Max. Leakage Current		10μA	10μA	10μA	10μA	1mA
Max. Turn - ON Time(ms)		0.1	0.1	0.1	0.1	0.1
Max. Turn - OFF Time(ms)		0.5	0.5	0.5	0.5	1.0

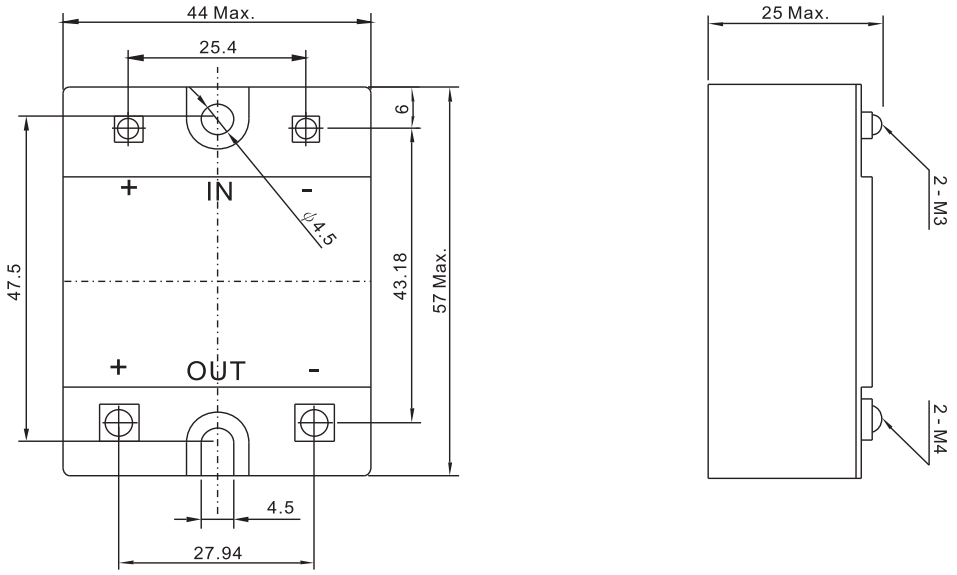
General Rating

Min. Insulation Resistance	1000MΩ
Dielectric Strength	1000 VAC
Operating Temperature	-30℃ ~+80℃
Storage Temperature	-40℃ ~+100℃
Unit Weight	Approx 120g

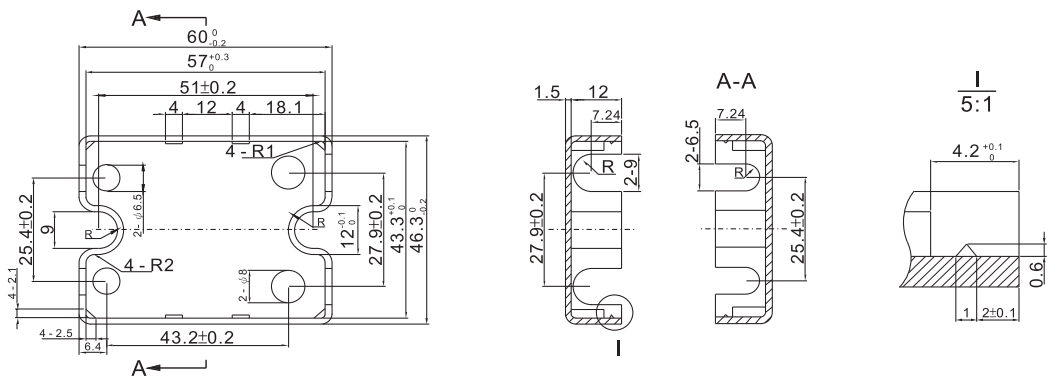
Load Current Derating Curve



Dimensions : (Unit : mm)



Safety Cover

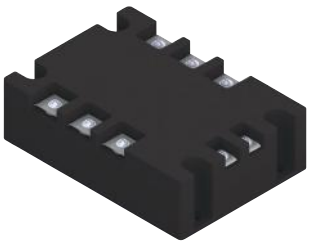


S.S.R.

SDT / SAT (10 - 40A)

Features

- DC/AC input, AC output
- With internal RC soak up network
- Zero voltage turn-on, zero current turn-off
- Optically isolated input and output
- Two-way SCR output
- Liquid epoxy-filled, metal(cu)base



Order Code:

SDT 3 ∗ ∗ A ∗ ∗ ∗
a b c d e f

a : Model : SDT = DC Input, AC output ; SAT = AC input, AC output
b : Output Voltage : 3 = 380 VAC
c : Rated Current : 10A, 20A, 40A
d : Turn-On Type : NIL = Zero-On
e : Special Code : NIL = With LED
f : Option : NIL = Without Safety Cover

Input

Type	SDT	SAT
Inputl Voltage Range	3~32 VDC	90~280 VAC
Input Current	≦ 50mA	≦ 20mA
Min Release Voltage	≧ 1VDC	≧ 25VAC

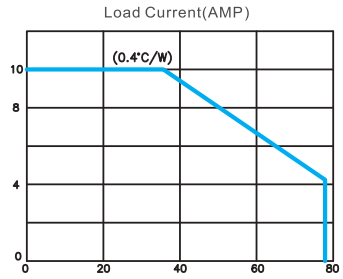
Output Load

Type NO	10A	20A	40A
Max. Rated Load Current Range	10A	20A	40A
Max. Surge Current (10ms)	100A	200A	400A
Load Voltage Range	380VAC		
Transient Overvoltage	1000Vp		
Max. ON-State Drop Voltage	1.5VAC		
Max. Leakage Current	10mA		
Max. Turn - ON Time	≦ 10ms (Zero-on)		
Max. Turn - OFF Time	≦ 10ms		
Operate Frequency	47~400Hz		
Max. Power Dissipation	5 W/A		
Min. OFF-State dv/dt	200V/ μ S		

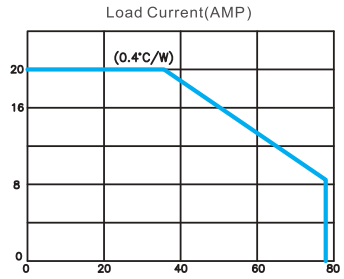
General Rating

Insulation Resistance	≧ 1000MΩ
Insulation Between Input-Output	2000 VAC
Insulation Input-Output To Case	2000 VAC
Operating Temperature	-30℃ ~+80℃
Storage Temperature	-40℃ ~+100℃
Unit Weight	Approx 400g

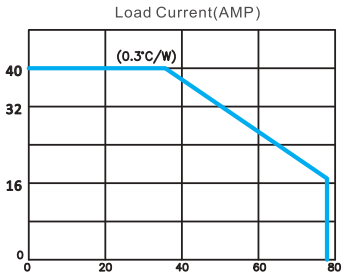
Load Current Derating Curve



Ambient Temperature(°C)
10A

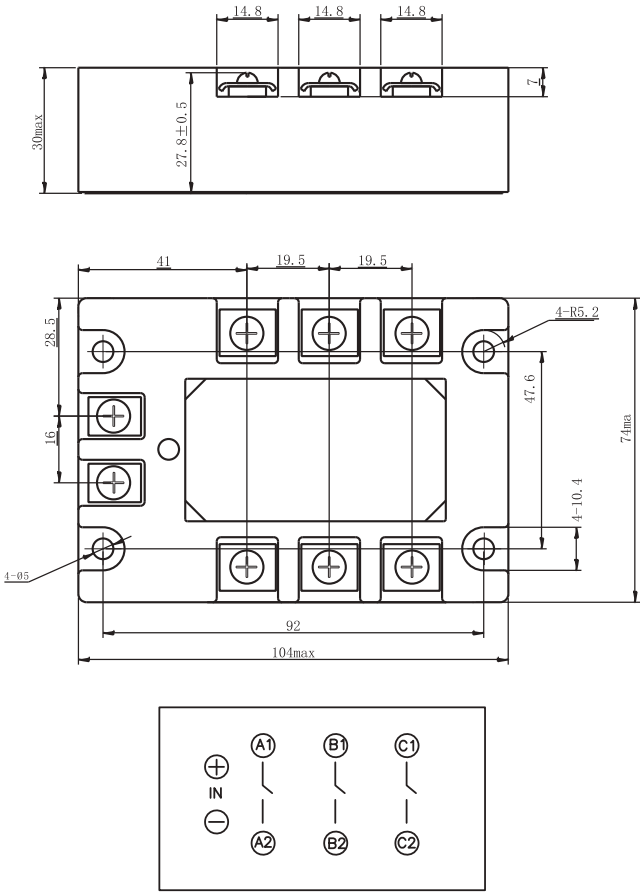


Ambient Temperature(°C)
20A



Ambient Temperature(°C)
40A

Dimensions : (Unit : mm)

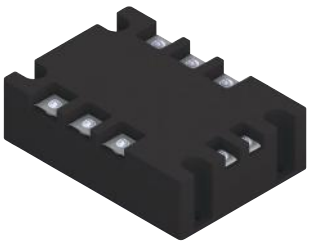


S.S.R.

SDT / SAT (60 - 100A)

Features

- DC/AC input, AC output
- With internal RC soak up network
- Zero voltage turn-on, zero current turn-off
- Optically isolated input and output
- Two-way SCR output
- Liquid epoxy-filled, metal(cu)base



Order Code:

SDT 3 ∗ ∗ A ∗ ∗ ∗
a b c d e f

a : Model : SDT = DC Input, AC output ; SAT = AC input, AC output
b : Output Voltage : 3 = 380 VAC
c : Rated Current : 60A, 70A, 90A, 100A
d : Turn-On Type : NIL = Zero-On
e : Special Code : NIL = With LED
f : Option : NIL = Without Safety Cover

Input

Type	SDT	SAT
Inputl Voltage Range	3~32 VDC	90~280 VAC
Input Current	≦ 50mA	≦ 20mA
Min Release Voltage	≧ 1VDC	≧ 25VAC

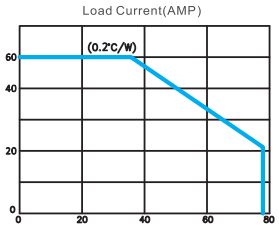
Output Load

Type NO	60A	70A	90A	100A
Max. Rated Load Current Range	60A	70A	90A	100A
Max. Surge Current (10ms)	600A	700A	840A	1000A
Load Voltage Range	380VAC			
Transient Overvoltage	800Vp			
Max. ON-State Drop Voltage	2VAC			
Max. Leakage Current	≦ 10mA			
Max. Turn - ON Time	≦ 10ms (Zero-on)			
Max. Turn - OFF Time	≦ 10ms			
Operate Frequency	47~400Hz			
Max. Power Dissipation	5 W/A			
Min. OFF-State dv/dt	200V/ μ S			

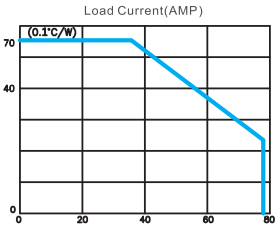
General Rating

Insulation Resistance	≧ 1000MΩ
Insulation Between Input-Output	2000 VAC
Insulation Input-Output To Case	2000 VAC
Operating Temperature	-30℃ ~+80℃
Storage Temperature	-40℃ ~+100℃
Unit Weight	Approx 400g

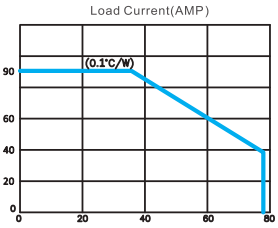
Load Current Derating Curve



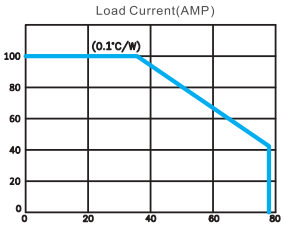
Ambient Temperature(℃)
60A



Ambient Temperature(℃)
70A

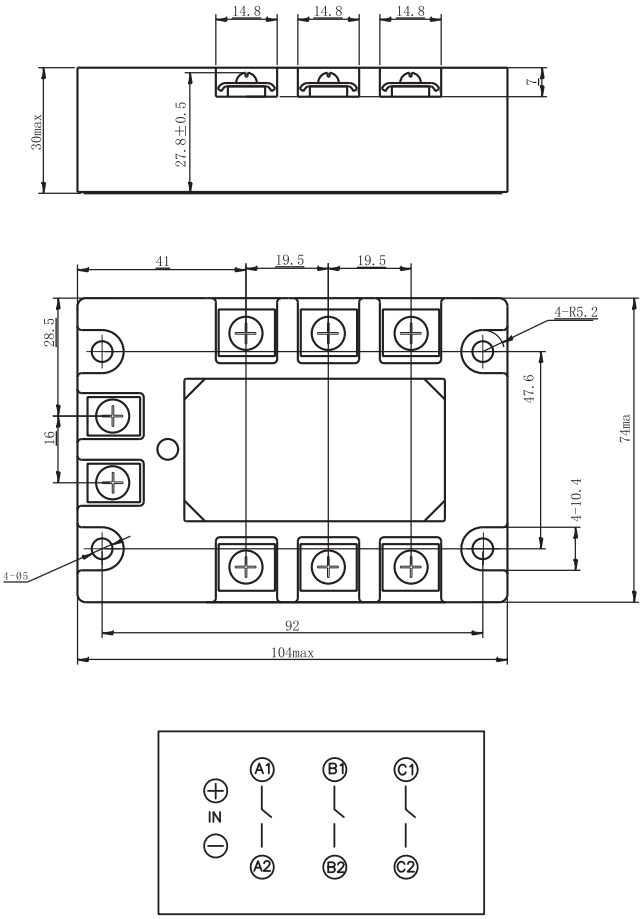


Ambient Temperature(℃)
90A



Ambient Temperature(℃)
100A

Dimensions : (Unit : mm)



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