



# ORIENT

Ph c le

P d c Da a Shee

Pa N be : OR-M302X/OR-M305X

C e : \_\_\_\_\_

Da e: \_\_\_\_\_

## 一级代理商：

深圳市弗瑞鑫电子有限公司

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Features

- (1) High inrush current capability (Voltage: 3750V)
- (2) 4 inrush current limitation
- (3) High efficiency peak-to-peak efficiency VDRM:  
302X: Min. 400V, 305X: Min. 600V
- (4) High electrical efficiency peak-to-peak efficiency:  
302X: Typ. 10V, 305X: Typ. 800V
- (5) Temperature coefficient
- (6) Operating temperature range -40 to +110
- (7) Safety standards:  
UL approved (N.E323844)  
VDE approved (N.40029733)  
CQC approved (N.CQC19001231256)
- (8) Complies with RoHS, REACH standards
- (9) MSL Classification

Decision

The OR-M302X, OR-M305X components are high quality, fully certified and approved by the relevant authorities. The approved SOP-4 package design is fully compliant. Therefore, the components are fully qualified for use in all applications.

3. Application Range

ACM Die	ACM SAE	SAIC EIC
Lighting Control	Speed/Value Control	Speed SAE Relays
Temperature Control		

4. Function



5. Absolute Maximum Rating (Ta=25 °C)

	Parameter	Symbol	Rated Value	Unit
I	Forward Current	$I_F$	50	A
	Junction Temperature	$T_J$	125	
	Reverse Voltage	$V_R$	6	V
	Power Dissipation	P	100	W
	Off-State Operational Voltage	OR-M302X $V_{DRM}$ OR-M305X	400 600	V
O	Operating RMS Current	$I_{T(RMS)}$	100	A(RMS)
	Peak Reverse Surge Current (PW=1 μs, 120 °C)	$I_{TSM}$	1	A
	Junction Temperature	$T_J$	125	
	Collector Power Dissipation	$P_C$	300	W
	Total Power Dissipation	P	330	W
	*1 Inlet Voltage	$V_i$	3750	V
	Working Temperature	T	-40 ~ +110	
	Storage Temperature	$T_g$	-55 ~ +125	
*2 Soldering Temperature	T			

Note:

\*1 AC frequency, R.H.=40~60% R.H. In this case, items 1, 2 & 3 are held together, and items 4, 6 are held together.

\*2 For 10 seconds



6. Electrical Characteristics at Ta=25°C

	Parameter	Symbol	Min	Typ	Max	Unit	Condition
I	Forward Voltage	$V_F$	---	1.2	1.6	V	$I_F=10\text{mA}$
	Reverse Current	$I_R$	---	---	5	μA	$V_R=6\text{V}$
O	*1. Peak Blocking Current, Emitter Diode	$I_{DRM}$	---	10	100	mA	$V_{DRM} = \text{Rated } V_{DRM}$
	Peak Off-State Voltage, Emitter Diode	$V_{TM}$	---	---	2.5	V	$I_{TM}=100\text{μA}$ Peak
	*2. Critical Reverse Off-State Voltage	$V_{i}/d$	---	10	---	V/μs	$V_i = 240\text{V}$
	OR-M302X		---	800	---		
	OR-M305X		---	800	---		

Table

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5

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„БС—Б

OR-M302X

OR-M305X

E

OR-M302X/OR-M305X

OR-M302X/OR-M305X



7. Order Information

Part Number

**OR-M302X-W-Y-Z**

**OR-M305X-W-Y-Z**

Note

X = Part Number (0,1,2,3,4)

W = Terminal type (TP, TP1).

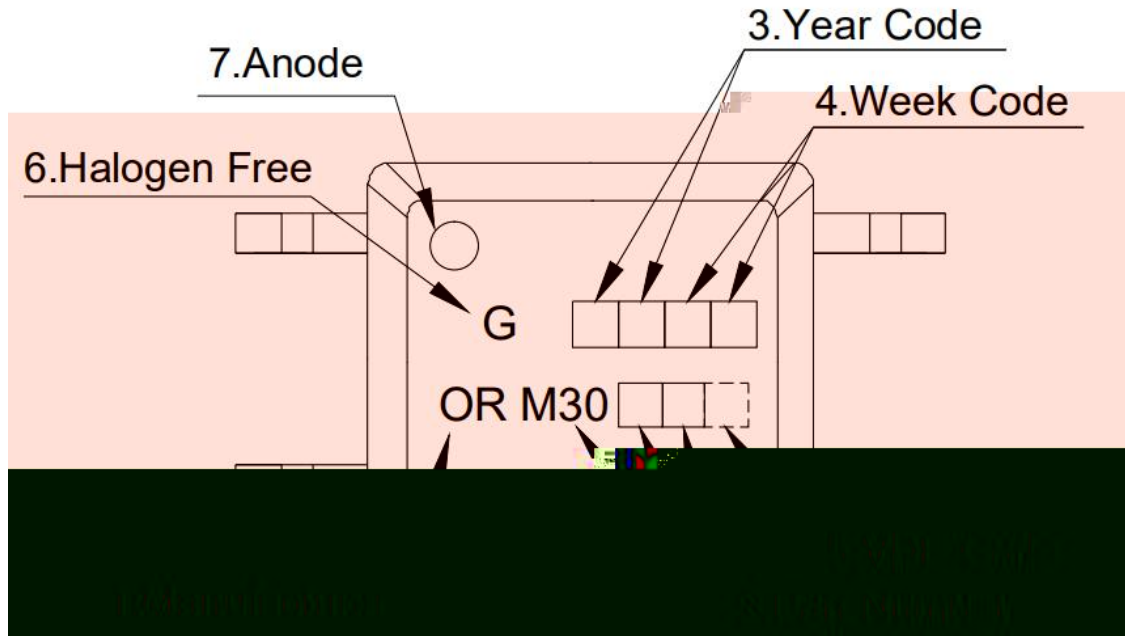
Y = Voltage VDE type (This is a reference).

Z = Gauge of Halogen free.

\* VDE Certificate required.

Option	Description	Packing quantity
TP	Surface lead free (low halogen) + TP cable & terminal	3000 pieces
TP1	Surface lead free (low halogen) + TP1 cable & terminal	3000 pieces

8. Naming Rule



1. Manufacturer : ORIENT.

2. Part Number : M30  .

3. Year Code   '21' ea '2021' a d .

4. Week Code   01 ea the first week, 02 ea the second week a d .

5. VDE Code  (Optional)

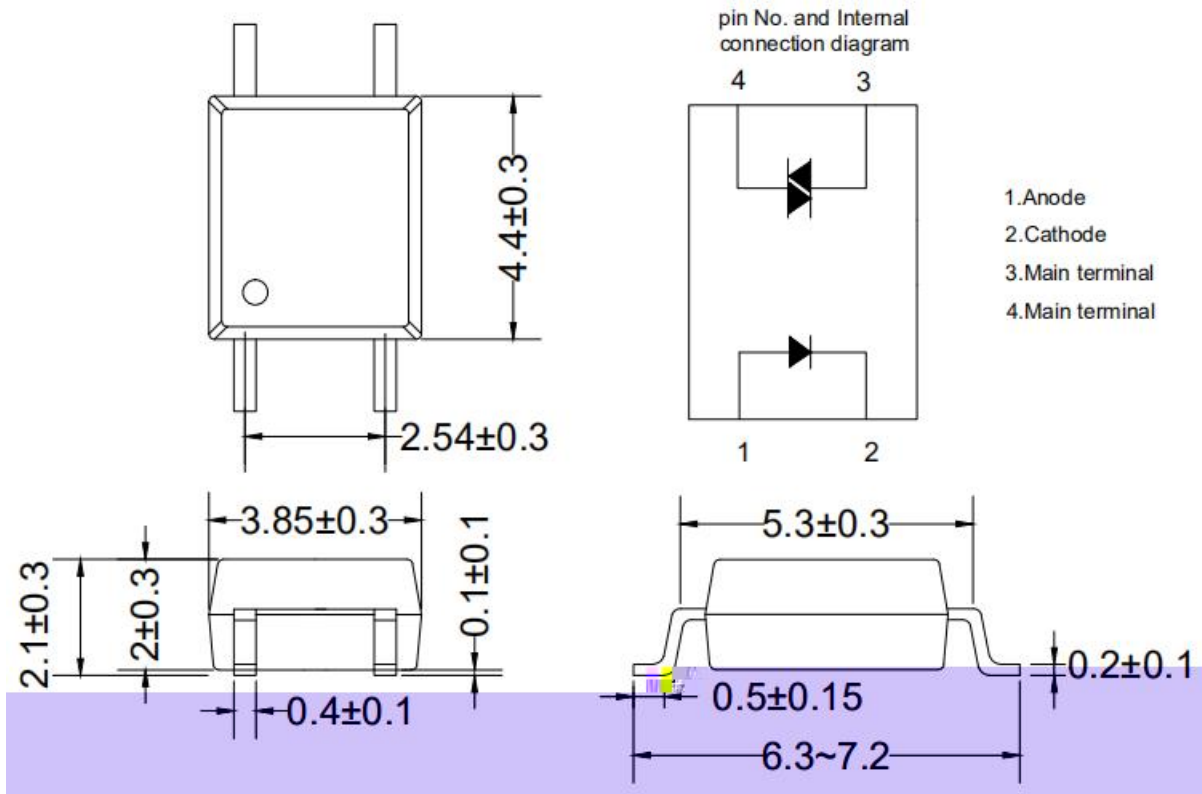
6. HFC Code G : Halogen Free.

7. Anode.

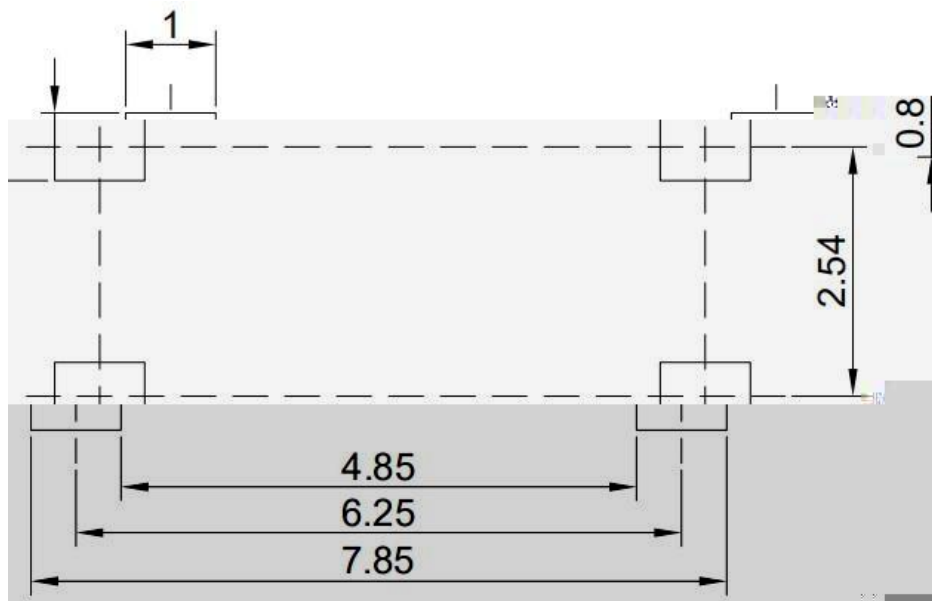
\* VDE Code can be elected.

### 9. Package Dimension

OR-M30XX



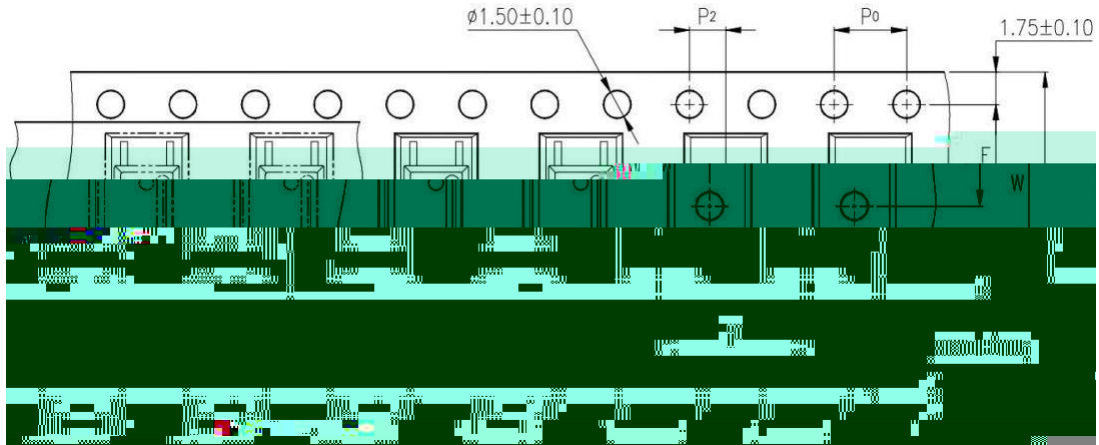
### 10. Recommended Foot Print Pattern (Mount Pad)



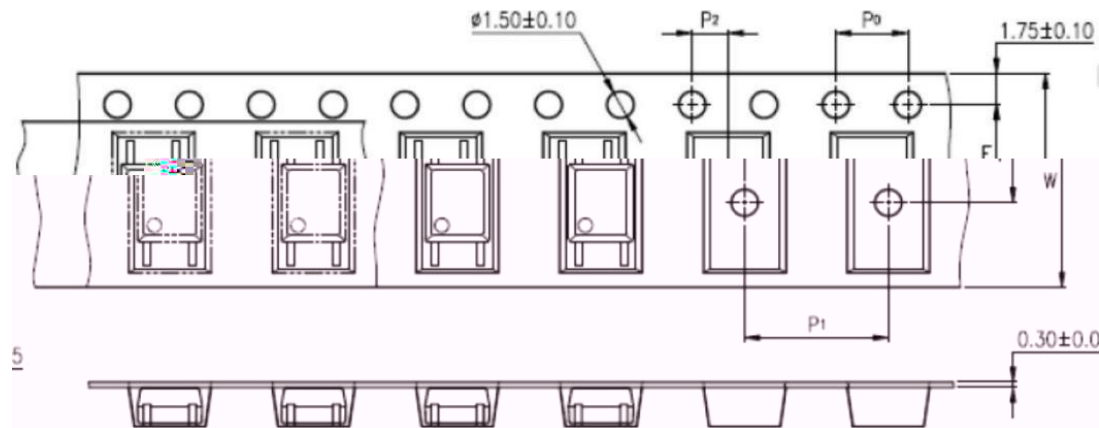
unit: mm

### 11. Taiping Dimension

(1)OR-M30XX-TP



(2)OR-M30XX-TP1



De c i i	S b l	Di e i i (i ch)
Ta e ide	W	12 0.3 0.472
Pi ch f c k e h l e	P0	4 0.1 0.157
Di a c e f c a e	F	5.5 0.1 0.217
	P2	2 0.1 0.079
Di a c e f c a e c a e	P1	8 0.1 0.315

Package T e	TP/TP1
Q a i i e ( c )	3000

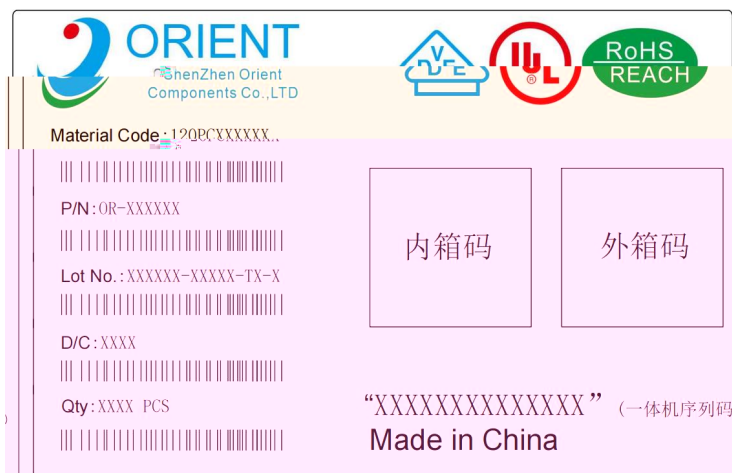


## 12. Package Dimension

### (1) Package dimension

Packing Information	
Packing	Reel
Tape Width	12
Quantity Reel	3,000 pcs
Small (inner) Dimension	345*345*45
Large (Outer) Dimension	480 360 360
Master Dimension	6,000 pcs
Master Length	60,000 pcs

### (2) Packing Label Sample



#### Note

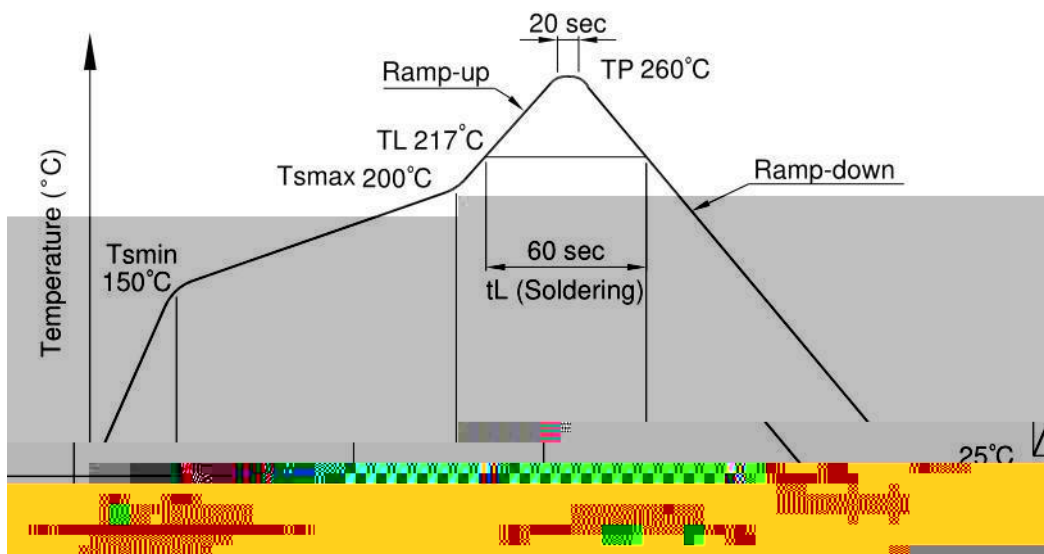
1. Material Code: Product ID.
2. P/N: Characteristic "O" designation. If applicable, specify it.
3. Lot No.: Production date.
4. D/C: Production week.
5. Quantity: Packaging quantity.

### 13. Tem e a e P ofile Of Solde ing

#### 1 IR Refl lde i g (JEDEC-STD-020C c lia )

O e i e lde i g efl i ec e ded i hi he c di i f e e a e a d i e file h bel .D lde e ha h ee i e .

P ofile i em	Condi ion
Pehea	
-Te ea eMi (TS i )	150 C
-Te ea eMa (TS a )	200 C
-Ti e( i a )( )	90 30 ec
S lde i g e	
-Te ea e(TL)	217 C
-Ti e( L)	60 ec
Peak Te ea e	260 C
Peak Te ea e i e	20 ec
Ra - a e	3 C/ ec a .
Ra -d a ef eak e e a e	3 6 C/ ec
Refl i e	3



2 Wa e lde i g (JEDEC22A111 c lia )

O e i e lde i gi ec e ded i hi he c di i f e e a e.

Te e a e	260+0/-5 C
Ti e	10 ec
P ehea e e a e	5 140 C
P ehea i e	30 80 ec



3 Ha d lde i g b lde i gi

All i gle lead lde i gi e e i gle ce .O e i e lde i gi ec e ded.

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### 14. CHARACTERISTICS CURVES (TYPICAL PERFORMANCE)

Fig.1 Forward current vs Ambient temperature

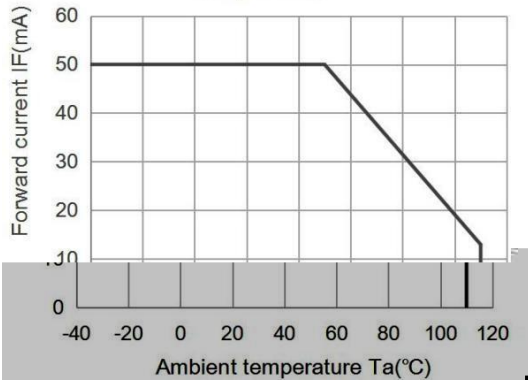


Fig.2 On-state current ITM (A) vs Ambient temperature

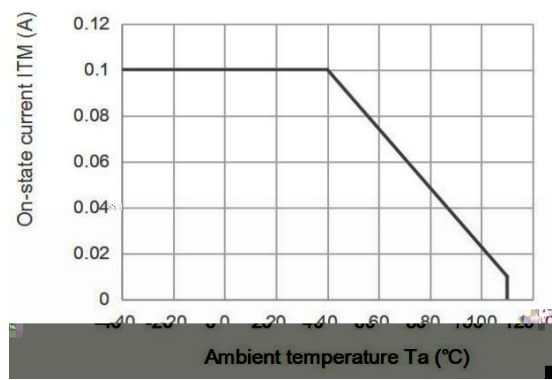


Fig.3 Minimum Trigger Current vs. Ambient temperature

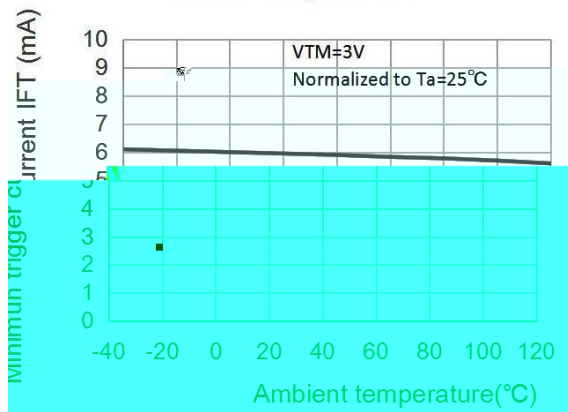


Fig.4 Forward current vs. Forward voltage

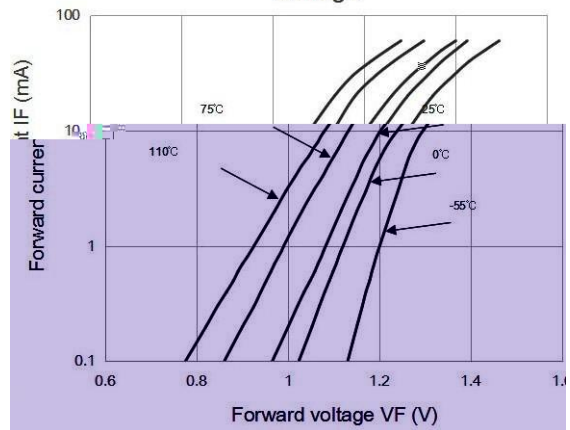


Fig.5 On-state voltage vs. Ambient temperature

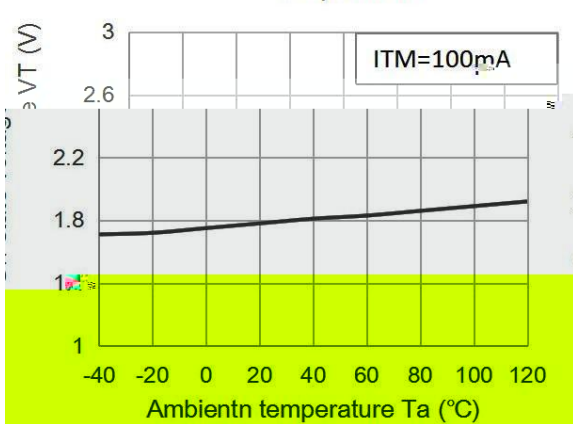


Fig.6 Holding current vs. Ambient temperature

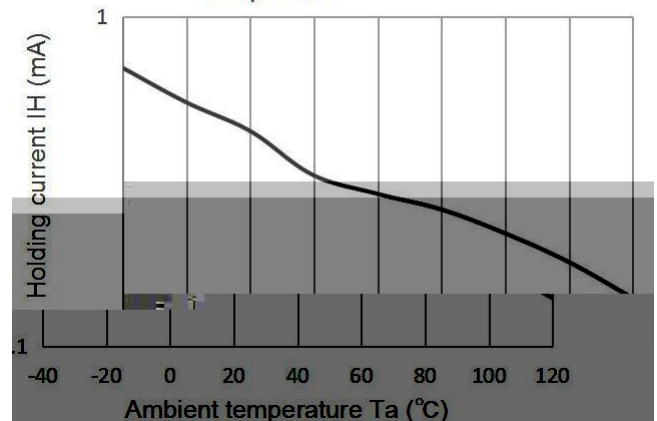


Fig.7 Repetitive peak off-state current

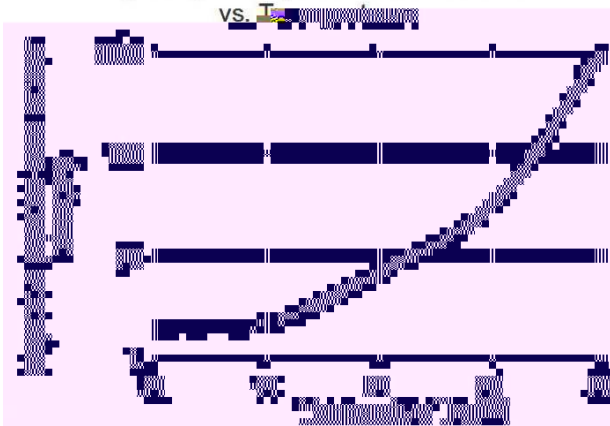


Fig.8 On-state current vs. On-state voltage

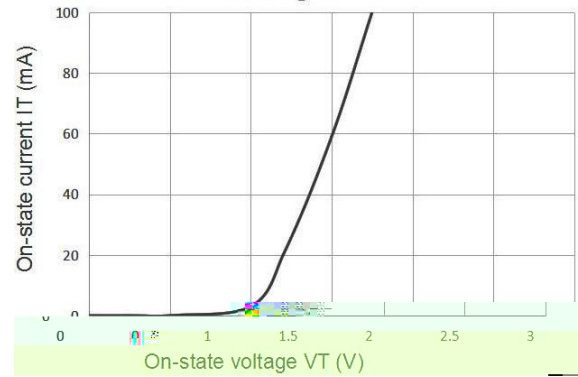


Fig9. Basic On-state Current Measurement /High Power Thyristor Device

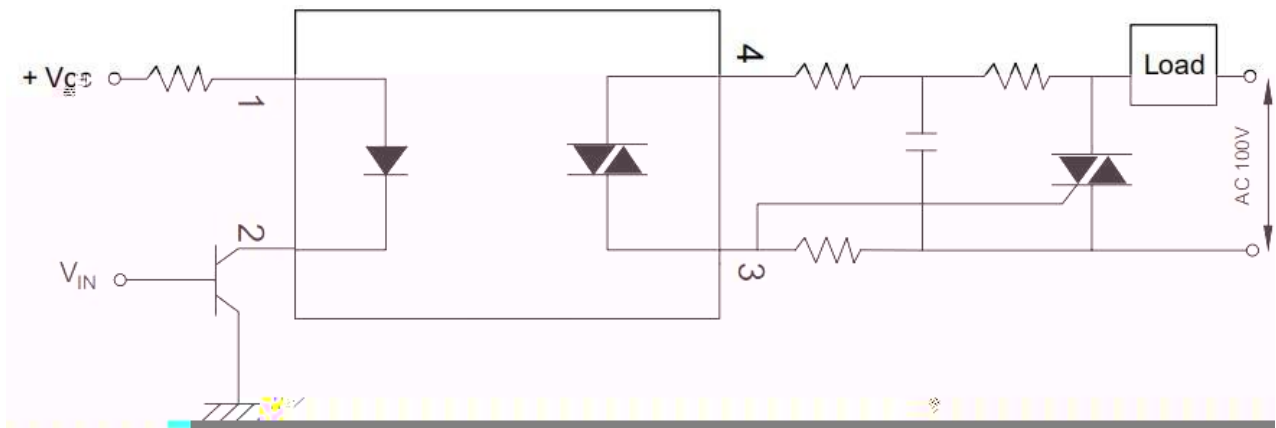
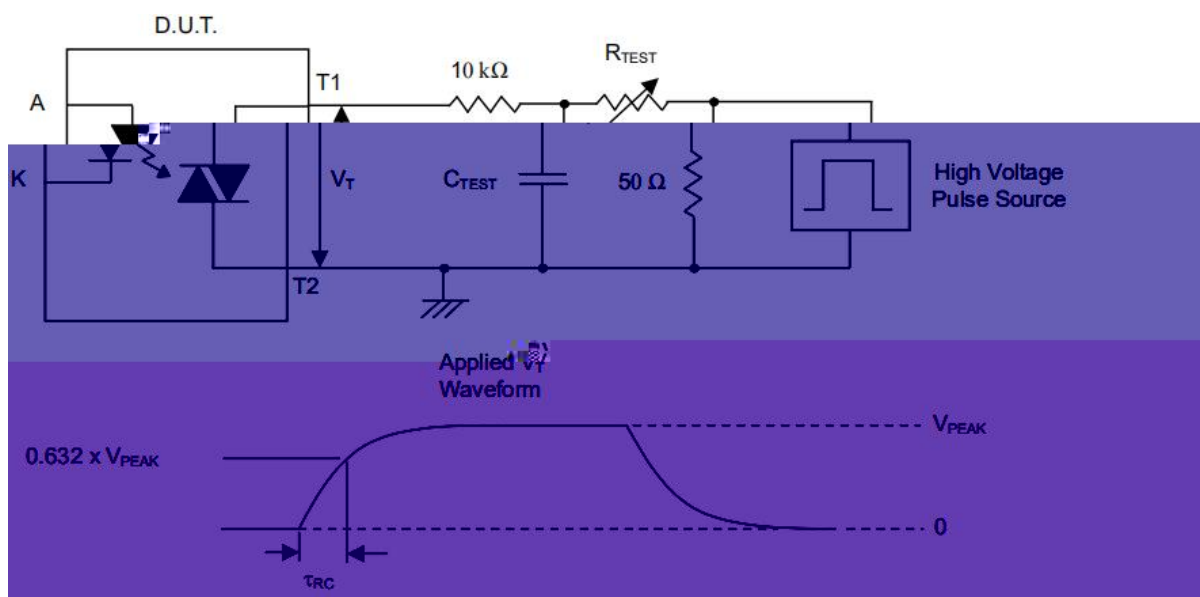


Fig10. Standard Test Circuit & Waveform



### Measurement Method

