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## SPECIFICATION FOR APPROVAL

CUSTOMER	立創電子
CERTIFIED MODEL/TYPE	SMCJ18
PART NO.	SMCJ18CA (RoHS+HF)
APPLICATION	
CUSTOMER P/N	
ISSUE DATE	Jan.18,2021
REV. NO.	
REV. DATE	

FOR CUSTOMER APPROVAL	CHECKED BY
	<i>Dan Zhang</i>
	APPROVED BY
	<i>Huaifang Zhang</i>





**REVISED RECORD SHEET**

REV. NO	REV. DATE	REVISED CONTENT



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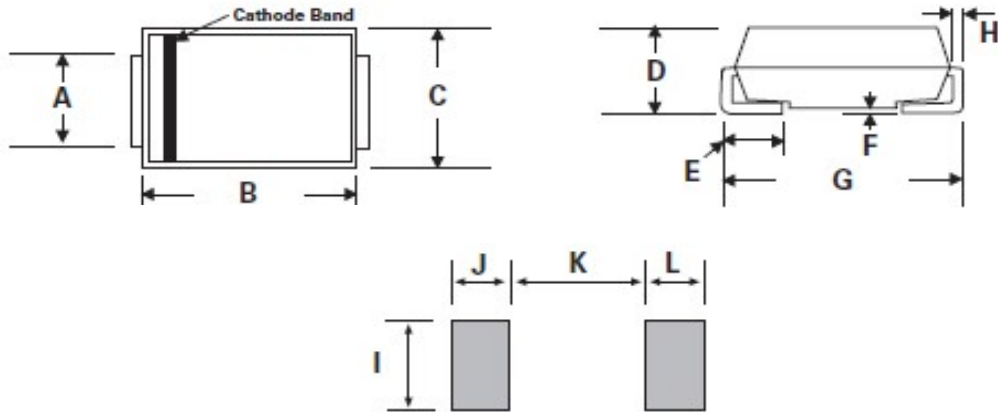
Part Number Code

Example :

**SMCJ**   **18**   **CA**  
(1)        (2)        (3)

No.	Item	Digit	Specification
(1)	Product Type	SMCJ	Thinking Power TVS SMD Type
(2)	Reverse Stand off Voltage ( $V_{RWM}$ )	18	18=18 $V_{RWM}$
(3)	Type Code	CA	Bi-directional 5% VBR Voltage Tolerance

Structure and Dimensions



\*The Cathode bend for Uni-directional product only.

Item	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	2.75	3.25	0.108	0.128
B	6.6	7.11	0.26	0.28
C	5.59	6.22	0.22	0.245
D	2	2.62	0.079	0.103
E	0.76	1.52	0.03	0.06
F	-	0.203	-	0.008
G	7.75	8.13	0.305	0.32
H	0.152	0.305	0.006	0.012
I	3.3	-	0.129	-
J/L	2.4	-	0.094	-
K	-	4.2	-	0.165

## Electrical Characteristics

Peak power dissipation with a 10/1000µs waveform : 1500W

Operating junction and storage temperature range : -55~+150 °C

Part No. (Uni)	Part No. (Bi)	Reverse Stand off Voltage	Breakage Voltage VBR @ IT		Test Current	Maximum Clamping Voltage VC @ Ipp	Maximum Peak Pulse Current	Maximum Reverse Leakage IR @VRWM	Marking Code	
			VRWM ( V )	Min( V )					Max( V )	IT( mA )
SMCJ5.0A	SMCJ5.0CA	5	6.4	7	10	9.2	163	800	GDE.	BDE.
SMCJ6.0A	SMCJ6.0CA	6	6.67	7.37	10	10.3	145.7	800	GDG.	BDG.
SMCJ6.5A	SMCJ6.5CA	6.5	7.22	7.98	10	11.2	134	500	GDK.	BDK.
SMCJ7.0A	SMCJ7.0CA	7	7.78	8.6	10	12	125	200	GDM.	BDM.
SMCJ7.5A	SMCJ7.5CA	7.5	8.33	9.21	1	12.9	116.3	100	GDP.	BDP.
SMCJ8.0A	SMCJ8.0CA	8	8.89	9.83	1	13.6	110.3	50	GDR.	BDR.
SMCJ8.5A	SMCJ8.5CA	8.5	9.44	10.4	1	14.4	104.2	20	GDT.	BDT.
SMCJ9.0A	SMCJ9.0CA	9	10	11.1	1	15.4	97.4	10	GDV.	BDV.
SMCJ10A	SMCJ10CA	10	11.1	12.3	1	17	88.3	5	GDX.	BDX.
SMCJ11A	SMCJ11CA	11	12.2	13.5	1	18.2	82.5	1	GDZ.	BDZ.
SMCJ12A	SMCJ12CA	12	13.3	14.7	1	19.9	75.4	1	GEE.	BEE.
SMCJ13A	SMCJ13CA	13	14.4	15.9	1	21.5	69.8	1	GEG.	BEG.
SMCJ14A	SMCJ14CA	14	15.6	17.2	1	23.2	64.7	1	GEK.	BEK.
SMCJ15A	SMCJ15CA	15	16.7	18.5	1	24.4	61.5	1	GEM.	BEM.
SMCJ16A	SMCJ16CA	16	17.8	19.7	1	26	57.7	1	GEP.	BEP.
SMCJ17A	SMCJ17CA	17	18.9	20.9	1	27.6	54.4	1	GER.	BER.
SMCJ18A	SMCJ18CA	18	20	22.1	1	29.2	51.4	1	GET.	BET.
SMCJ20A	SMCJ20CA	20	22.2	24.5	1	32.4	46.3	1	GEV.	BEV.
SMCJ22A	SMCJ22CA	22	24.4	26.9	1	35.5	42.3	1	GEX.	BEX.
SMCJ24A	SMCJ24CA	24	26.7	29.5	1	38.9	38.6	1	GEZ.	BEZ.
SMCJ26A	SMCJ26CA	26	28.9	31.9	1	42.1	35.7	1	GFE.	BFE.
SMCJ28A	SMCJ28CA	28	31.1	34.4	1	45.4	33.1	1	GFG.	BFG.
SMCJ30A	SMCJ30CA	30	33.3	36.8	1	48.4	31	1	GFK.	BFK.
SMCJ33A	SMCJ33CA	33	36.7	40.6	1	53.3	28.2	1	GFM.	BFM.
SMCJ36A	SMCJ36CA	36	40	44.2	1	58.1	25.9	1	GFP.	BFP.
SMCJ40A	SMCJ40CA	40	44.4	49.1	1	64.5	23.3	1	GFR.	BFR.
SMCJ43A	SMCJ43CA	43	47.8	52.8	1	69.4	21.7	1	GFT.	BFT.
SMCJ45A	SMCJ45CA	45	50	55.3	1	72.7	20.6	1	GFV.	BFV.
SMCJ48A	SMCJ48CA	48	53.3	58.9	1	77.4	19.4	1	GFX.	BFX.
SMCJ51A	SMCJ51CA	51	56.7	62.7	1	82.4	18.2	1	GFZ.	BFZ.
SMCJ54A	SMCJ54CA	54	60	66.3	1	87.1	17.3	1	GGE.	BGE.
SMCJ58A	SMCJ58CA	58	64.4	71.2	1	93.6	16.1	1	GGG.	BGG.
SMCJ60A	SMCJ60CA	60	66.7	73.7	1	96.8	15.5	1	GGK.	BGK.

Electrical CharacteristicsPeak power dissipation with a 10/1000 $\mu$ s waveform : 1500W

Operating junction and storage temperature range : -55~+150 °C

Part No. (Uni)	Part No. (Bi)	Reverse Stand off Voltage	Breakage Voltage VBR @ IT		Test Current IT( mA )	Maximum Clamping Voltage VC @ Ipp	Maximum Peak Pulse Current Ipp(A)	Maximum Reverse Leakage IR @VRWM	Marking Code	
			VRWM ( V )	Min( V )					Max( V )	Uni
SMCJ64A	SMCJ64CA	64	71.1	78.6	1	103	14.6	1	GGM.	BGM.
SMCJ70A	SMCJ70CA	70	77.8	86	1	113	13.3	1	GGP.	BGP.
SMCJ75A	SMCJ75CA	75	83.3	92.1	1	121	12.4	1	GGR.	BGR.
SMCJ78A	SMCJ78CA	78	86.7	95.8	1	126	11.9	1	GGT.	BGT.
SMCJ85A	SMCJ85CA	85	94.4	104	1	137	11	1	GGV.	BGV.
SMCJ90A	SMCJ90CA	90	100	111	1	146	10.3	1	GGX.	BGX.
SMCJ100A	SMCJ100CA	100	111	123	1	162	9.3	1	GGZ.	BGZ.
SMCJ110A	SMCJ110CA	110	122	135	1	177	8.5	1	GHE.	BHE.
SMCJ120A	SMCJ120CA	120	133	147	1	193	7.8	1	GHG.	BHG.
SMCJ130A	SMCJ130CA	130	144	159	1	209	7.2	1	GHK.	BHK.
SMCJ150A	SMCJ150CA	150	167	185	1	243	6.2	1	GHM.	BHM.
SMCJ160A	SMCJ160CA	160	178	197	1	259	5.8	1	GHP.	BHP.
SMCJ170A	SMCJ170CA	170	189	209	1	275	5.5	1	GHR.	BHR.
SMCJ180A	SMCJ180CA	180	201	222	1	292	5.1	1	GHT.	BHT.
SMCJ190A	SMCJ190CA	190	209	243	1	308	4.8	1	GHV.	BHV.
SMCJ200A	SMCJ200CA	200	224	247	1	324	4.6	1	GHW.	BHW.
SMCJ220A	SMCJ220CA	220	246	272	1	356	4.2	1	GHX.	BHX.
SMCJ250A	SMCJ250CA	250	279	309	1	405	3.7	1	GHZ.	BHZ.
SMCJ300A	SMCJ300CA	300	335	371	1	486	3.1	1	GJE.	BJE.
SMCJ350A	SMCJ350CA	350	391	432	1	567	2.6	1	GJG.	BJG.
SMCJ400A	SMCJ400CA	400	447	494	1	648	2.3	1	GJK.	BJK.
SMCJ440A	SMCJ440CA	440	492	543	1	713	2.1	1	GJM.	BJM.

**Reliability**

Item	Standard	Test conditions / Methods	Specifications
HTRB (High Temp. Reverse Bias Test)	MIL-STD-750D METHOD 1038.3 Method 103	Test Temp. : 150°C Duration 168 hrs with rated VRWM	Electrical properties meet Specifications
PCT (Pressure Cooker Test)	MIL-STD-19500 EAPPENDIX C	Test Temp. : 121 °C Pressure:1.2Kg Duration: 96 hrs	Electrical properties meet Specifications
TCT	MIL-STD-750D METHOD 1051.5	Test Temp. : -55°C ~+150°C 20 cycles	Electrical properties meet Specifications
Forward Surge	MIL-STD-750D METHOD 4066.3	Sine half wave 8.3mS 1 shot IFSM:20A forSMF 40A for SMA/ P4SMA & SMAF 100A for SMB/P6SMB 200A for SMC/1.5SMC For Uni-directional product only.	Electrical properties meet Specifications
Soldering Heat	MIL-STD-750D METHOD 2031.2	Test Temp. : 260°C Duration:10 sec 1cycle	Electrical properties meet Specifications



## Soldering Recommendation

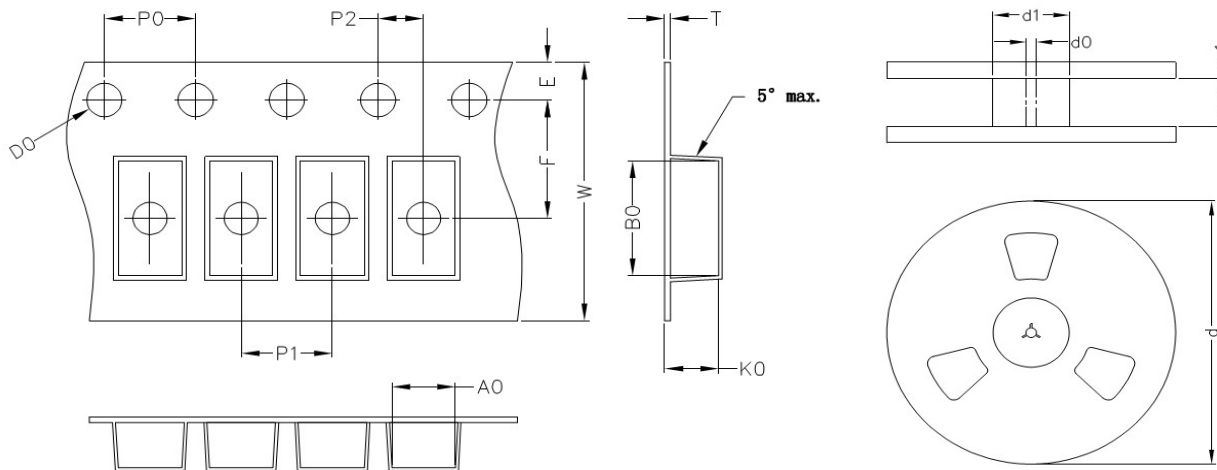
### ■ IR-reflow soldering profile



Reflow Condition	Lead-free assembly
<b>Preheat</b> -Temperature Min(Ts min) -Temperature Min(Ts max) -Time (min to max) (ts)	150°C 200°C 60 – 180 seconds
<b>Average ramp up rate</b> -Temperature Liquidus (TL) to peak	3°C/second max
<b>Ts(max) to TL</b> -Ramp-up Rate	3°C/second max.
<b>Reflow</b> -Temperature Liquidus (TL) -Time (tl)	217°C 60 – 150 seconds
<b>Peak Temperature (TP)</b>	260°C
<b>Time within 5°C of actual peak Temperature(tp)</b>	20 – 40 seconds
<b>Ramp-down Rate</b>	6°C/second max.
<b>Time 25°C to peak Temperature(TP)</b>	8 minutes max.
<b>Do not exceed</b>	260°C

## Packaging

### Taping Specification



(Unit : mm)

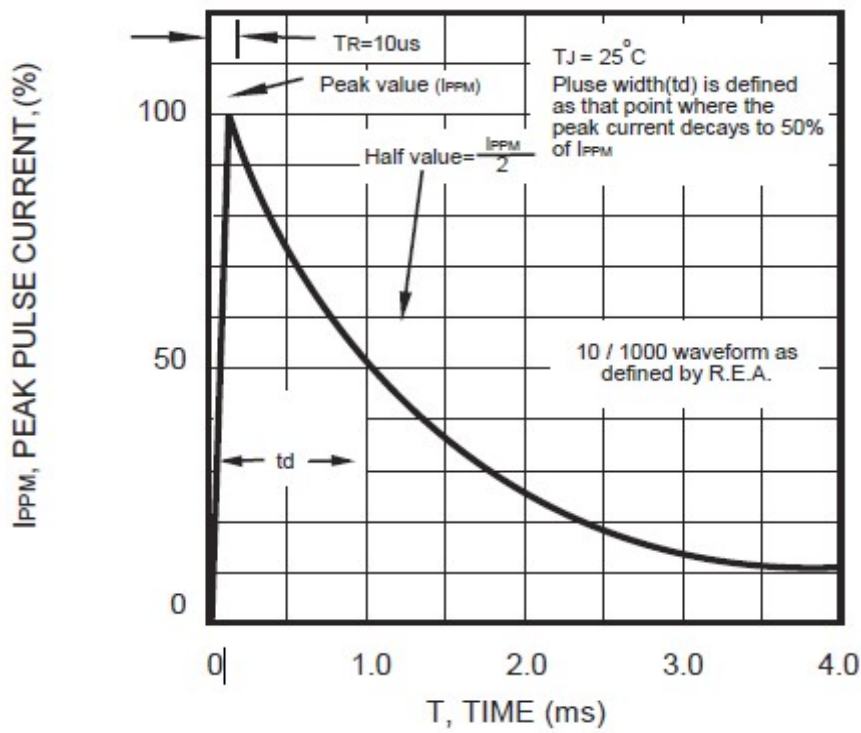
Index	A0	B0	K0	D0	E	F	P0	P1	P2	T	W	d(13")	d1	d0	w1
SMCJ	6.05	8.31	2.54	1.55	1.75	7.5	4	8	2	0.25	16	330	75	13.5	17

Notes: The tolerance of carrier tape and top cover is  $\pm 0.1$  mm, the tolerance of reel is  $\pm 2$  mm

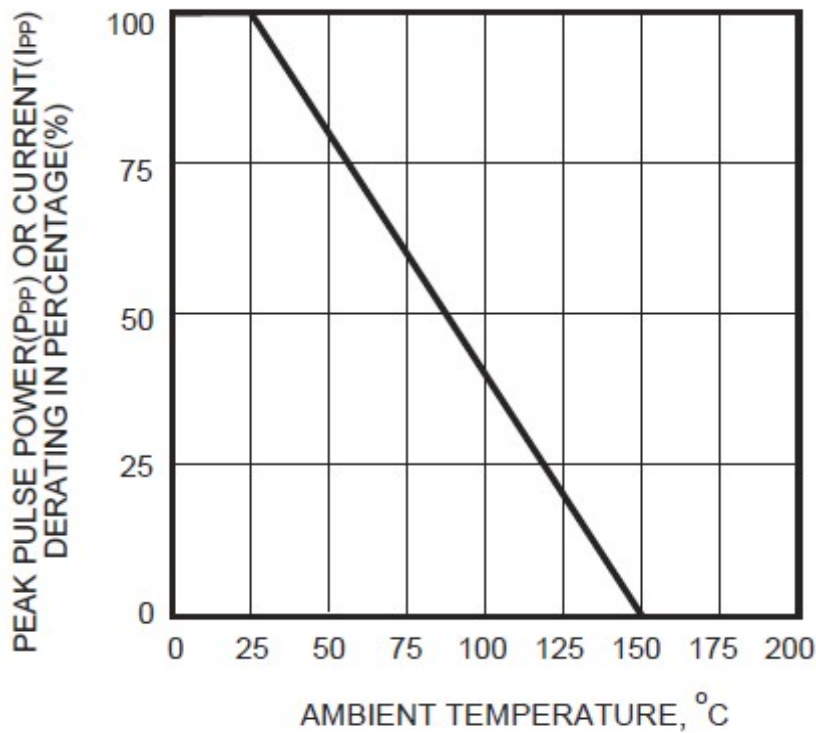
### Quantity

Series Type	Reel size	Quantity (pcs/reel)
SMCJ	13"	3,000

Pulse Waveform

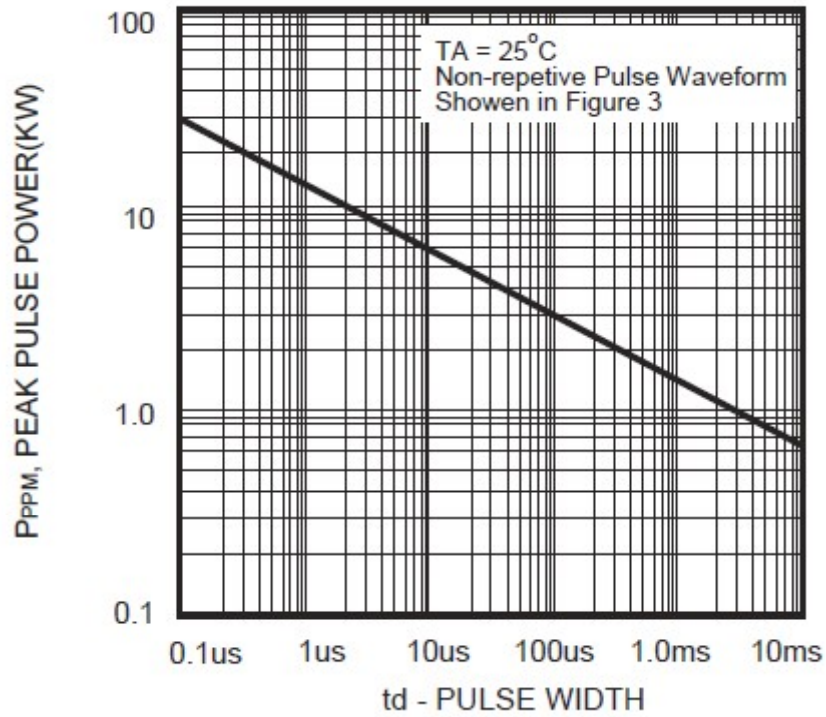


Pulse Derating Curve



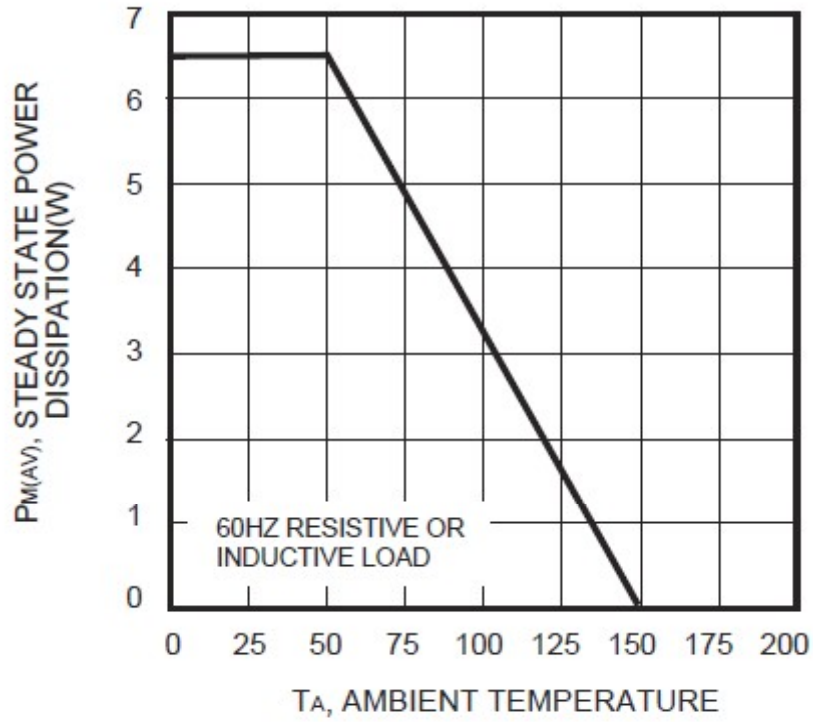
Peak Pulse Power Rating Curve

SMCJ series



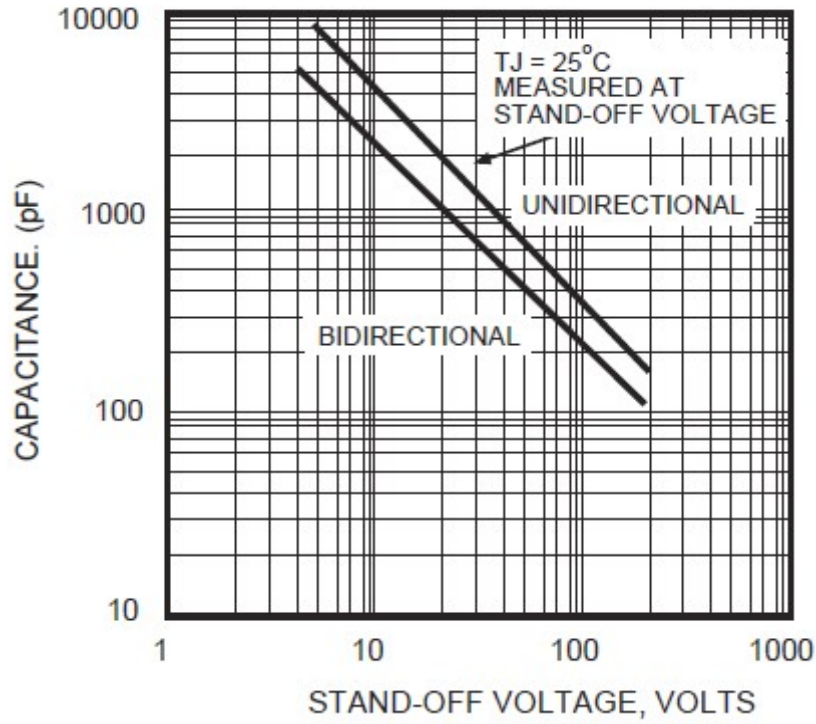
Steady State Power Derating Curve

SMCJ series



Typical Junction Capacitance

SMCJ series



### RoHS Compliant Declaration

We hereby declare that the components delivered to your company are compliant with RoHS directive 2015/863/EU.

### Warehouse Storage Conditions of Products

(I) Storage Conditions :

- 1.Storage Temperature :  $-10^{\circ}\text{C} \sim +40^{\circ}\text{C}$
- 2.Relative Humidity :  $\leq 75\%RH$
- 3.Keep away from corrosive atmosphere and sunlight.

(II) Period of Storage : 1 year

## Safety Approvals



\* UL 497B recognized (File # E229991)

## Certificates

- (1) IATF 16949 certificate
- (2) ISO 9001 certificate

## Test Report

- (1) RoHS test report
- (2) Halogen-free test report



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