

Features

- For surface mounted applications in order to optimize board space
- Pb-free plated
- Peak Power is 720W@1ms
- ESD Rating of Class X (> 15 kV) (IEC6100-4-2)
- Response Time is Typically<1 ns
- Low profile package
- Typical I_R less than 1μA above 10V
- Low inductance
- Excellent clamping capability
- AEC-Q101



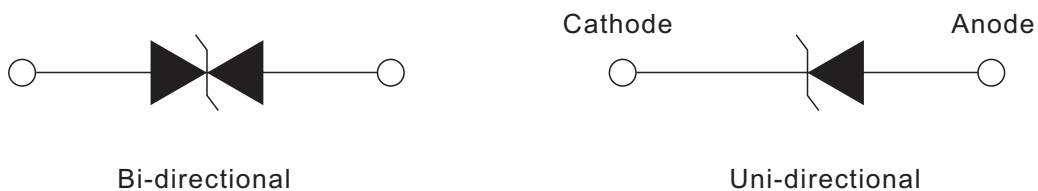
Applications

- I/O interface
- AC/DC power supply
- Low frequency signal transmission line (RS232, RS485, etc.)

Mechanical Characteristics

- **Case:** JEDEC DO-214AA. Molded plastic over glass passivated junction
- **Terminal:** Solderable per MIL-STD-750, Method 2026
- **Polarity:** Color band denoted positive end (cathode) except Bidirectional
- **Standard Packaging:** 12mm tape (EIA STD RS-481)
- **Weight:** 0.003 ounce, 0.093 gram

Functional Diagram



Maximum Ratings And Characteristics

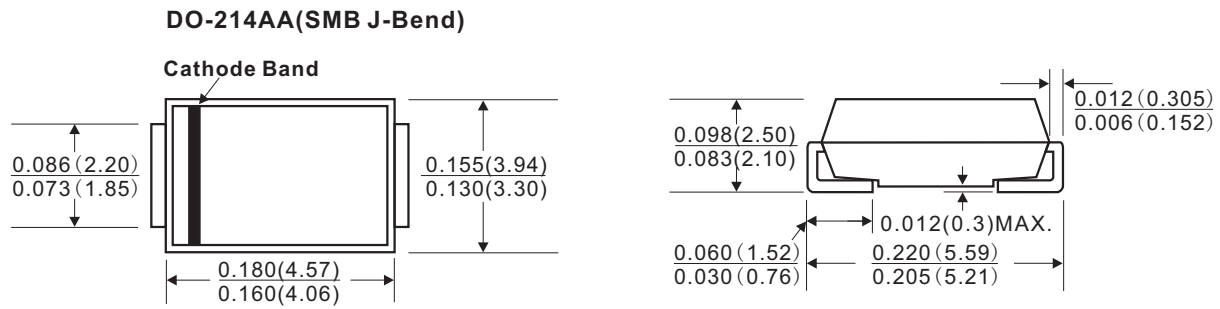
Ratings at 25°C ambient temperature unless otherwise specified.

RATING	SYMBOL	VALUE	UNITS
Peak Pulse Power Dissipation on 10/1000μs waveform	P _{PPM}	Minimum 720	Watts
Peak Forward Surge Current, 8.3ms Single Half Sine-Wave Superimposed on Rated Load, (JEDEC Method) (Note 2,3)	I _{FSM}	100	Amps
Operating junction and Storage Temperature Range	T _J , T _{STG}	-55 to +150	°C

Notes :

1. Non-repetitive current pulse, per Fig. 3 and derated above TA = 25°C per Fig. 2.
2. Mounted on 5.0mm x 5.0mm (0.03mm thick) Copper Pads to each terminal
3. 8.3ms single half sine-wave, or equivalent square wave, Duty cycle = 4 pulses per minutes maximum.

Dimensions (DO-214AA)



Dimensions in inches and (millimeters)

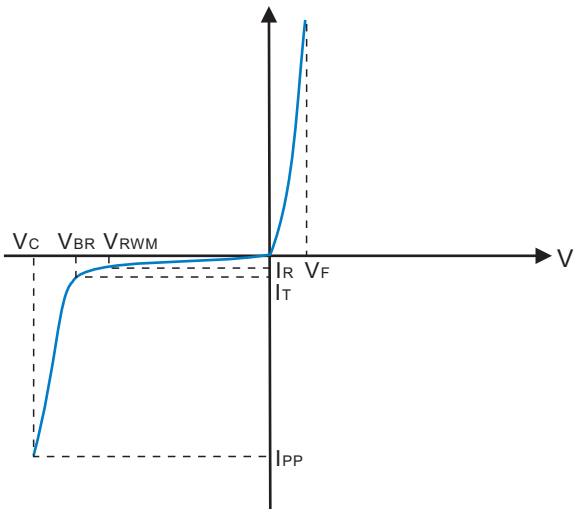
Electrical Characteristics

TSC Part Number		Device Marking Code		Reverse Stand-Off Voltage	Breakdown Voltage @IT		Test Current	Maximum Clamping Voltage @Ipp	Peak Pulse Current	Reverse Leakage @VRWM
UNI-Polar	BI-Polar	UNI	BI	VRWM(V)	VBR(V)Min.	VBR(V)Max.	IT(mA)	Vc(V)	Ipp(A)	IR(μA)
TSC6.0U	TSC6.0B	KG	AG	6.0	6.67	7.37	10	10.3	70.0	100
TSC8.0U	TSC8.0B	KR	AR	8.0	8.89	9.83	1	13.6	52.9	50
TSC12U	TSC12B	LE	BE	12.0	13.30	14.70	1	19.9	36.2	1
TSC15U	TSC15B	LM	BM	15.0	16.70	18.50	1	24.4	29.5	1
TSC16U	TSC16B	LP	BP	16.0	17.80	19.70	1	26.0	27.7	1
TSC18U	TSC18B	LT	BT	18.0	20.00	22.10	1	29.2	24.7	1
TSC20U	TSC20B	LV	BV	20.0	22.20	24.50	1	32.4	22.2	1
TSC22U	TSC22B	LX	BX	22.0	24.40	26.90	1	35.5	20.3	1
TSC26U	TSC26B	ME	CE	26.0	28.90	31.90	1	42.1	17.0	1
TSC28U	TSC28B	MG	CG	28.0	31.10	34.40	1	45.4	15.9	1
TSC30U	TSC30B	MK	CK	30.0	33.30	36.80	1	48.4	14.9	1
TSC33U	TSC33B	MM	CM	33.0	36.70	40.60	1	53.3	13.5	1
TSC36U	TSC36B	MP	CP	36.0	40.00	44.20	1	58.1	12.4	1
TSC40U	TSC40B	MR	CR	40.0	44.40	49.10	1	64.5	11.2	1
TSC58U	TSC58B	NG	DG	58.0	64.40	71.20	1	93.6	7.7	1
TSC60U	TSC60B	NK	DK	60.0	66.70	73.70	1	96.8	7.4	1
TSC150U	TSC150B	PM	EM	150.0	167.00	185.00	1	243.0	3.0	1
TSC170U	TSC170B	PR	ER	170.0	189.00	209.00	1	275.0	2.6	1
TSC440U	TSC440B	QM	FM	440.0	492.00	543.00	1	713.0	1.0	1

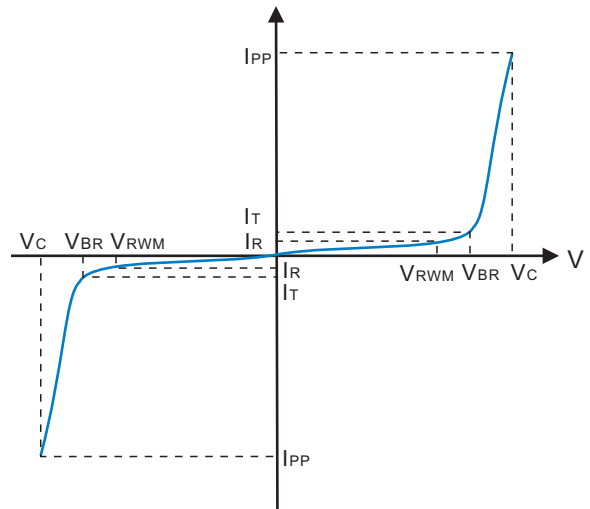
For bidirectional type having VRWM of 10 volts and less, the IR limit is double.

I-V Curve Characteristics

Uni-directional



Bi-directional



Ratings And Characteristic Curves(TA=25°C Unless otherwise noted)

Fig.1 Peak Pulse Power Rating

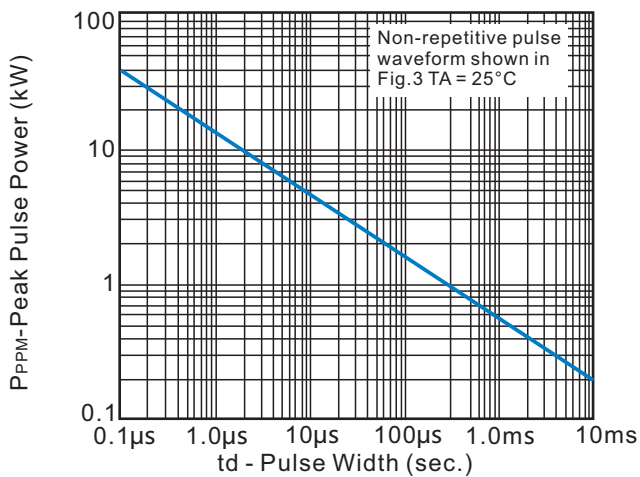


Fig.2 Pulse Derating Curve

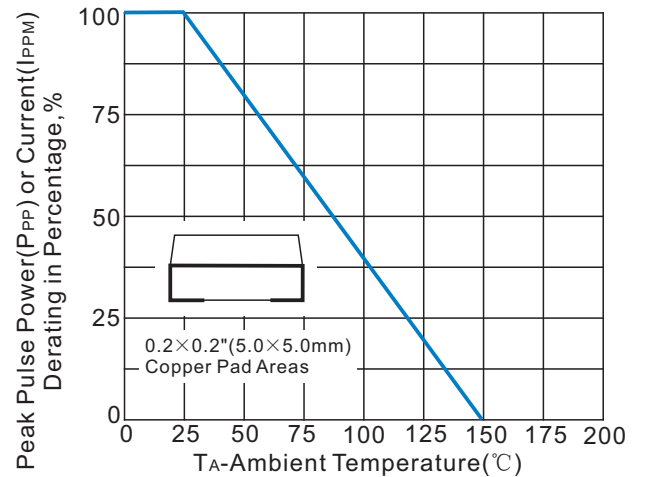


Fig.3 Pulse Waveform

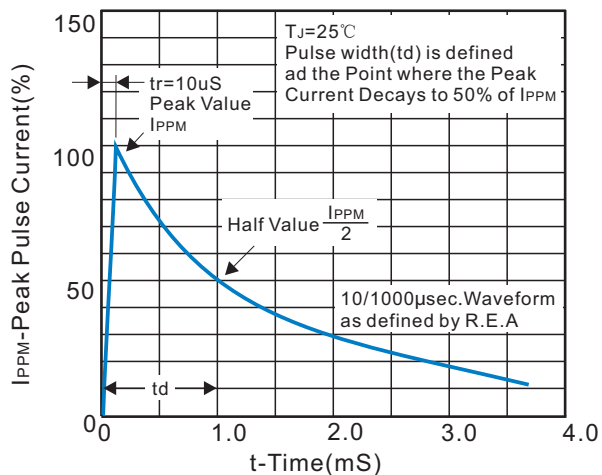
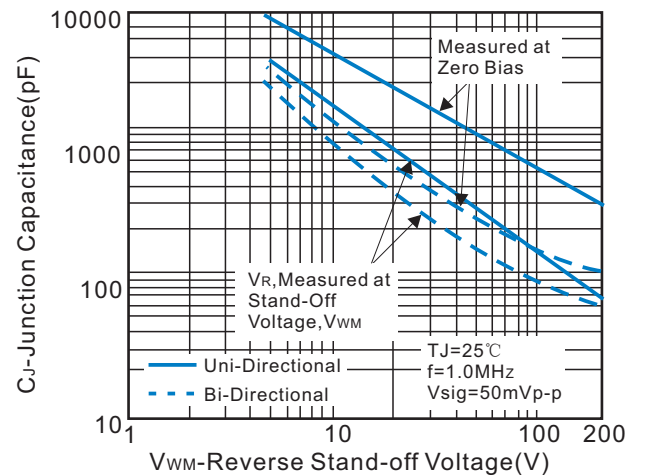


Fig.4 Typical Junction Capacitance



Ratings And Characteristic Curves

Fig.5 Typ. Transient Thermal Impedance

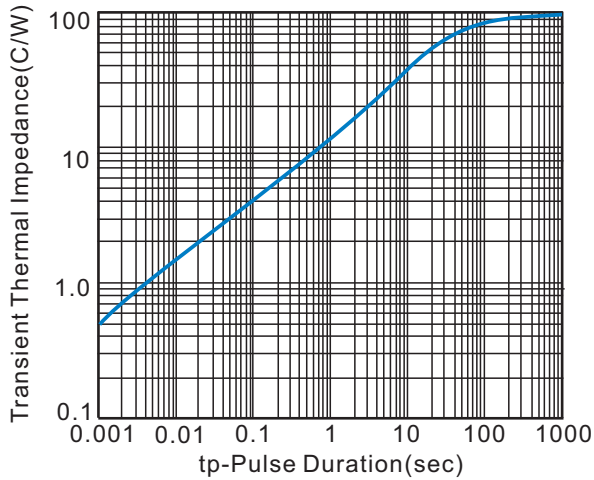
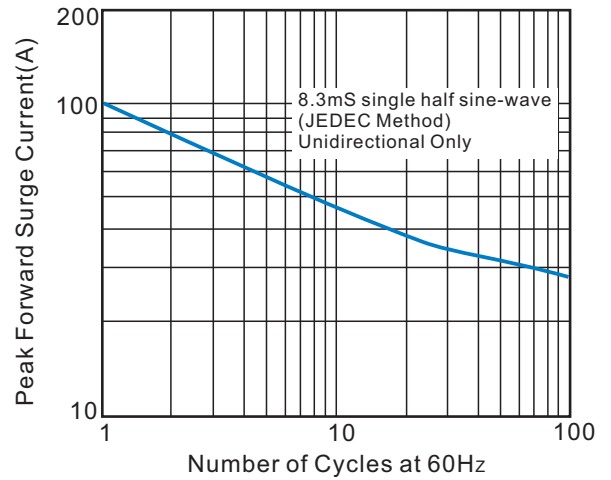


Fig.6 Maximum Non-Repetitive Peak Forward Surge Current Uni-Directional Only

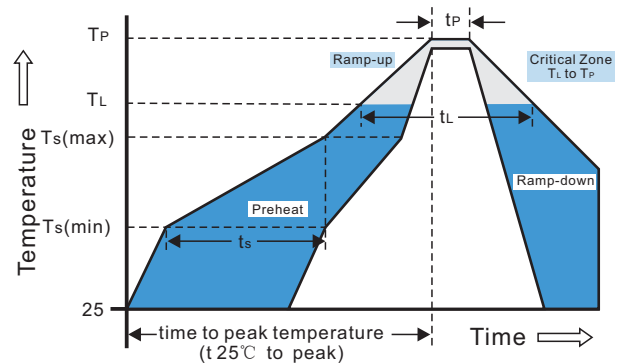


Recommended Soldering Conditions

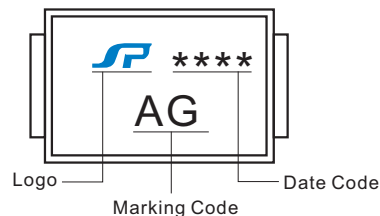
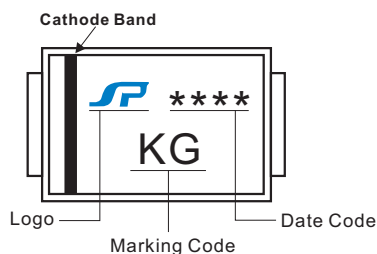
Recommended Conditions

Reflow Condition		Pb-Free assembly (see Fig.1)
Pre Heat	-Temperature Min($T_{s(min)}$)	+150°C
	-Temperature Max($T_{s(max)}$)	+200°C
	-Time(Min to Max)(t_s)	60-180secs
Average ramp up rate (Liquidus Temp(T_L) to peak)		3°C/sec.Max.
$T_{s(max)}$ to T_L -Ramp-up Rate		3°C/sec.Max.
Reflow	-Temperature(T_L)(Liquidus)	+217°C
	-Temperature(t_L)	60-150secs
Peak Temp(T_P)		+260(+0/-5)°C
Time within 5°C of actual Peak Temp(t_P)		30 secs.Max.
Ramp-down Rate		6°C/sec.Max.
Time 25°C to Peak Temp(T_P)		8 min.Max.
Do not exceed		+260°C

Reflow Soldering



Marking Code



Packing Options And Reel Specification-DO-214AA

Symbol	Ea Per Reel	REEL DIA (mm)	Industry Standard
TSC***	3000	330	EIARS-481

