

# Surface Mount Transient Voltage Suppressor

## Stand-Off Voltage - 6.0 to 440 Volts

### 600 Watt Peak Pulse Power

#### Features

- For surface mounted applications in order to optimize board space
- Low profile package
- Built-in strain relief
- Glass passivated junction
- Low inductance
- Excellent clamping capability
- Repetition Rate (duty cycle):0.01%
- Fast response time: typically less than 1.0ps from 0 Volts to V(BR) for unidirectional types
- Typical IR less than 1μA above 10V
- High Temperature soldering: 260°C/10 seconds at terminals
- Plastic package has Underwriters Laboratory Flammability 94V-O
- Pb-free plated



#### Mechanical Data

- **Case:** JEDEC DO-214AC. Molded plastic over glass passivated junction
- **Terminals:** 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:** 0.002ounce, 0.061gram

#### Devices For Bipolar Application

- For Bidirectional use C or CA Suffix for types TECB6.0 thru types TECB440 (e.g. TECB6.0C , TECB440CA)
- Electrical characteristics apply in both directions

#### Maximum Ratings And Characteristics

Ratings at 25°C ambient temperature unless otherwise specified.

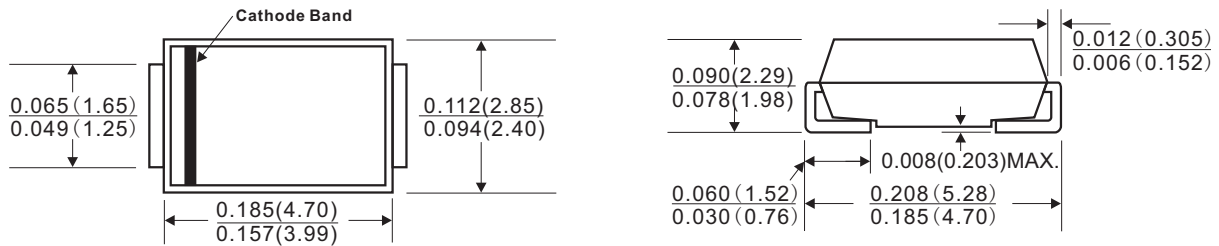
RATING	SYMBOL	VALUE	UNITS
Peak Pulse Power Dissipation on 10/1000μs waveform (Note 1,2 ,FIG.1)	P <sub>PPM</sub>	Minimum 600	Watts
Peak Pulse Current of on 10/1000μs waveform (Note 1,FIG.3)	I <sub>PPM</sub>	SEE TABLE 1	Amps
Peak Forward Surge Current,8.3ms Single Half Sine-Wave Superimposed on Rated Load,(JEDEC Method) (Note2,3)	I <sub>FSM</sub>	100	Amps
Operating junction and Storage Temperature Range	T <sub>J</sub> , T <sub>STG</sub>	-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-214AC)

DO-214AC(SMA J-Bend)



Dimensions in inches and(millimeters)

Electrical Characteristics

TABLE1

TECB 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)
TECB6.0A	TECB6.0CA	6G	6F	6.0	6.67	7.37	10	10.3	70.0	100
TECB8.0A	TECB8.0CA	8G	8F	8.0	8.89	9.83	1	13.6	52.9	50
TECB12A	TECB12CA	12G	12F	12.0	13.30	14.70	1	19.9	36.2	1
TECB15A	TECB15CA	15G	15F	15.0	16.70	18.50	1	24.4	29.5	1
TECB16A	TECB16CA	16G	16F	16.0	17.80	19.70	1	26.0	27.7	1
TECB20A	TECB20CA	20G	20F	20.0	22.20	24.50	1	32.4	22.2	1
TECB22A	TECB22CA	22G	22F	22.0	24.40	26.90	1	35.5	20.3	1
TECB26A	TECB26CA	26G	26F	26.0	28.90	31.90	1	42.1	17.0	1
TECB28A	TECB28CA	28G	28F	28.0	31.10	34.40	1	45.4	15.9	1
TECB30A	TECB30CA	30G	30F	30.0	33.30	36.80	1	48.4	14.9	1
TECB33A	TECB33CA	33G	33F	33.0	36.70	40.60	1	53.3	13.5	1
TECB36A	TECB36CA	36G	36F	36.0	40.00	44.20	1	58.1	12.4	1
TECB40A	TECB40CA	40G	40F	40.0	44.40	49.10	1	64.5	11.2	1
TECB58A	TECB58CA	58G	58F	58.0	64.40	71.20	1	93.6	7.7	1
TECB60A	TECB60CA	60G	60F	60.0	66.70	73.70	1	96.8	7.4	1
TECB150A	TECB150CA	150G	150F	150.0	167.00	185.00	1	243.0	3.0	1
TECB170A	TECB170CA	170G	170F	170.0	189.00	209.00	1	275.0	2.6	1
TECB440A	TECB440CA	440G	440F	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.  
For parts with A, the VBR is ±5%

Characteristic Curves (TA=25 °C unless otherwise noted)

Fig.1 Peak Pulse Power Rating

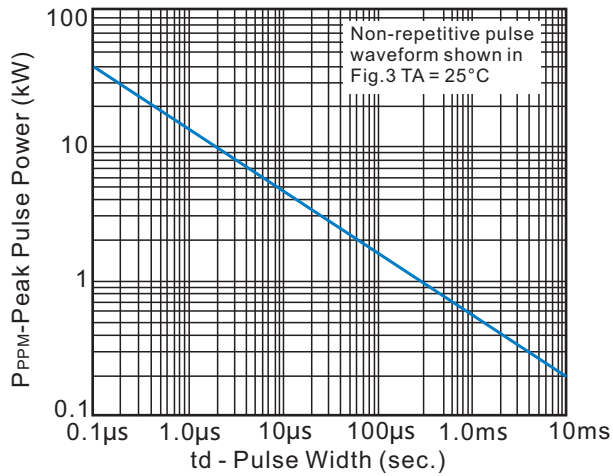


Fig.2 Pulse Derating Curve

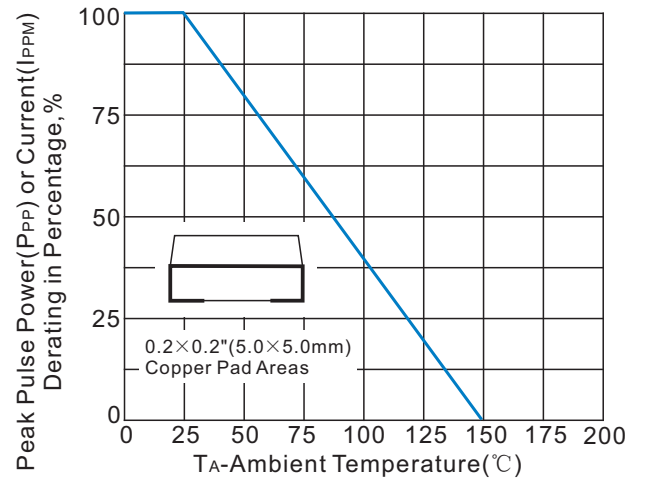


Fig.3 Pulse Waveform

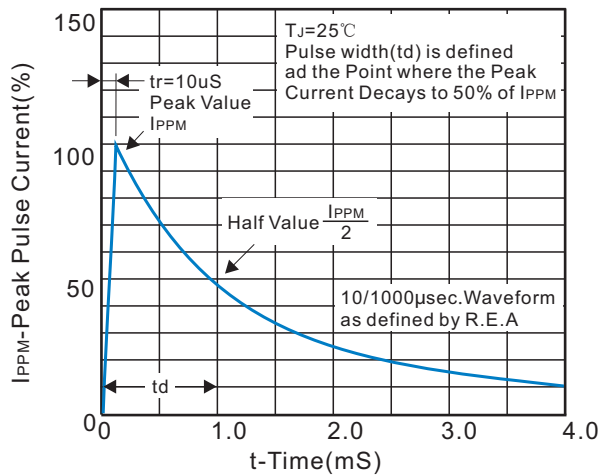


Fig.4 Typical Junction Capacitance

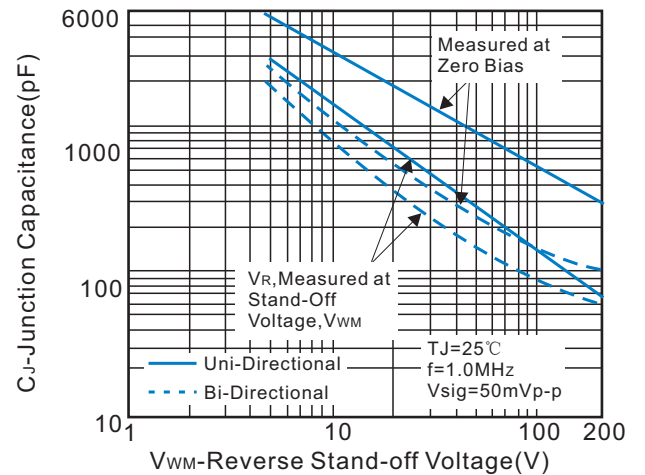


Fig.5 Typ. Transient Thermal Impedance

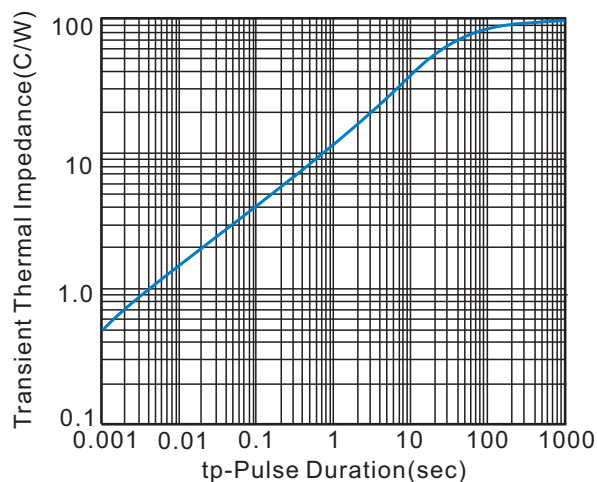
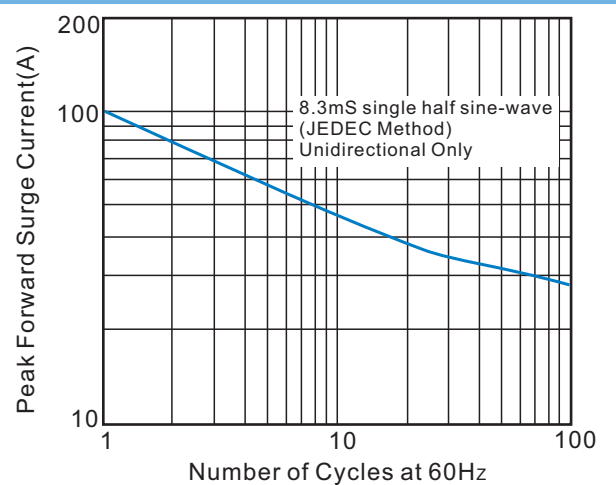


Fig.6 Maximum Non-Repetitive Peak Forward Surge Current Uni-Directional Only

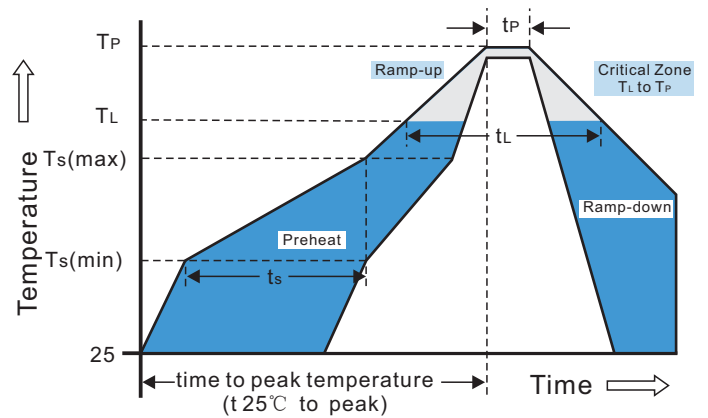


## Recommended Soldering Conditions

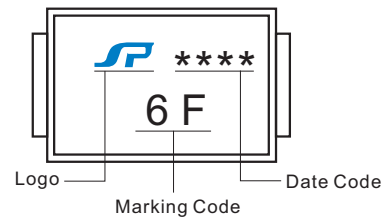
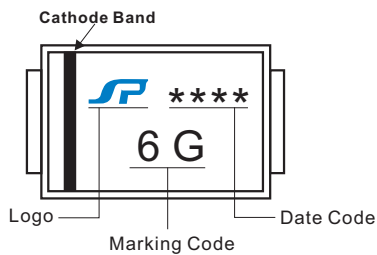
### Recommended Conditions

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 <sub>s</sub> )	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



## Tape And Reel Specification

Symbol	Ea Per Reel	REEL DIA (mm)	Industry Standard
TECB***	5000	330	EIA RS-481

