

# Surface Mount Transient Voltage Suppressor

## Stand-Off Voltage - 6.0 to 60 Volts

### 400 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 SOD-123FL molded plastic over passivated chip
- **Terminals:** Solder plated, solderable per MIL-STD-750 Method 2026
- **Polarity:** For uni-directional types the bandby laser denotes the cathode, which is positive with respect to the anode under normal TVS operation

#### Devices For Bipolar Application

- For Bidirectional use C or CA Suffix for types TECA6.0 thru types TECA60 (e.g. TECA6.0C , TECA60CA)
- 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>	400	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>	20	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 (SOD-123FL)



Electrical Characteristics

TABLE1

TECA 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)
TECA6.0A	TECA6.0CA	6M	6N	6.0	6.67	7.37	10	10.3	38.8	200
TECA8.0A	TECA8.0CA	8M	8N	8.0	8.89	9.83	1	13.6	29.4	50
TECA12A	TECA12CA	12M	12N	12.0	13.30	14.70	1	19.9	20.1	1
TECA15A	TECA15CA	15M	15N	15.0	16.70	18.50	1	24.4	16.4	1
TECA16A	TECA16CA	16M	16N	16.0	17.80	19.70	1	26.0	15.4	1
TECA18A	TECA18CA	18M	18N	18.0	20.00	22.10	1	29.2	13.7	1
TECA20A	TECA20CA	20M	20N	20.0	22.20	24.50	1	32.4	12.3	1
TECA22A	TECA22CA	22M	22N	22.0	24.40	26.90	1	35.5	11.3	1
TECA26A	TECA26CA	26M	26N	26.0	28.90	31.90	1	42.1	9.5	1
TECA28A	TECA28CA	28M	28N	28.0	31.10	34.40	1	45.4	8.8	1
TECA30A	TECA30CA	30M	30N	30.0	33.30	36.80	1	48.4	8.3	1
TECA33A	TECA33CA	33M	33N	33.0	36.70	40.60	1	53.3	7.5	1
TECA36A	TECA36CA	36M	36N	36.0	40.00	44.20	1	58.1	6.9	1
TECA40A	TECA40CA	40M	40N	40.0	44.40	49.10	1	64.5	6.2	1
TECA58A	TECA58CA	58M	58N	58.0	64.40	71.20	1	93.6	4.3	1
TECA60A	TECA60CA	60M	60N	60.0	66.70	73.70	1	96.8	4.1	1

Notes :

- 1.For bidirectional type having VRWM of 10 volts and less, the IR limit is double
- 2.For parts with A , the VBR is ± 5%

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

Fig.1 Peak Pulse Power Rating

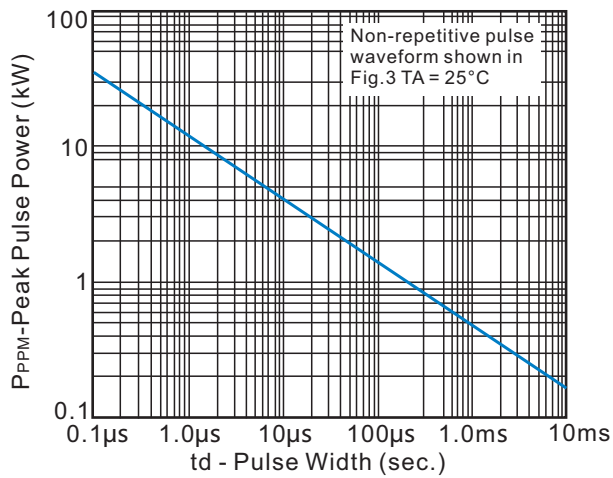


Fig.2 Pulse Derating Curve

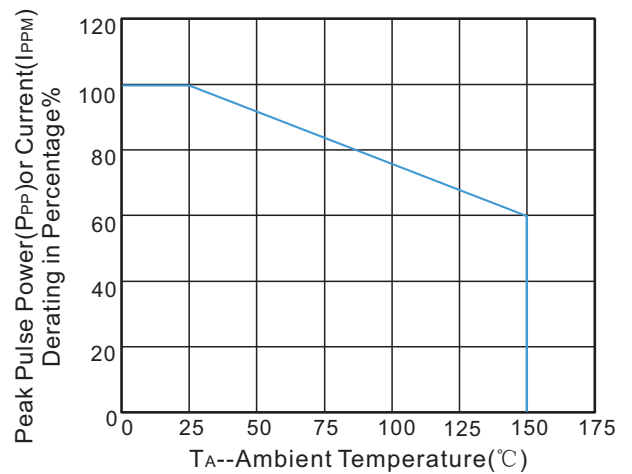


Fig.3 Pulse Waveform

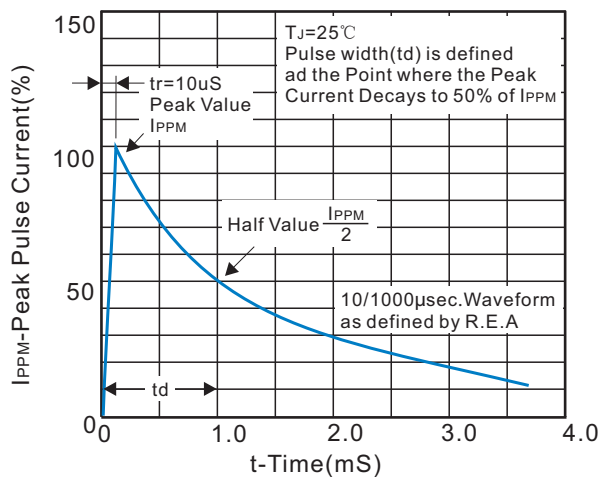


Fig.4 Typical Junction Capacitance

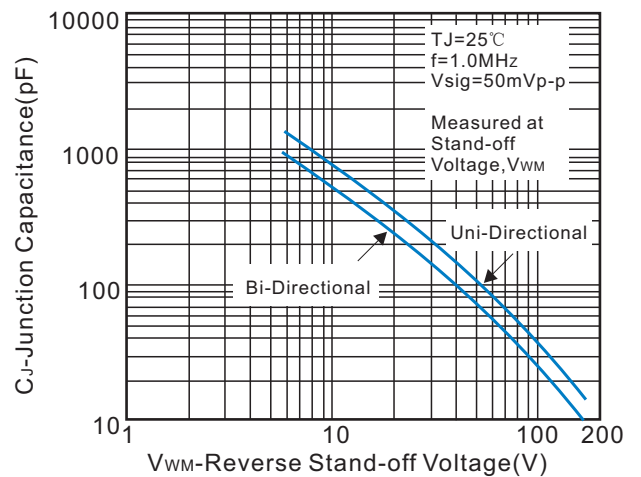


Fig.5 Typ. Transient Thermal Impedance

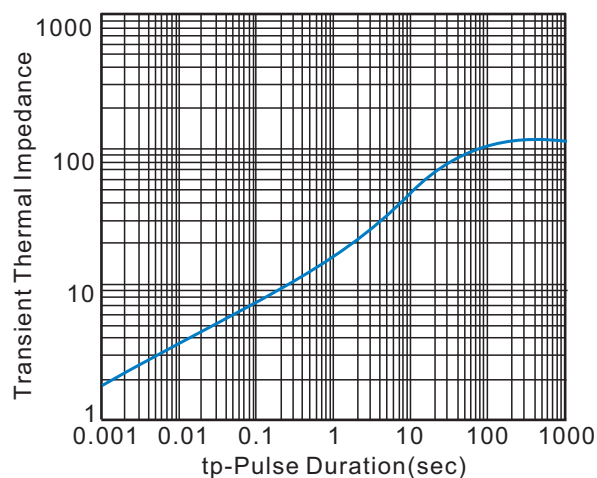
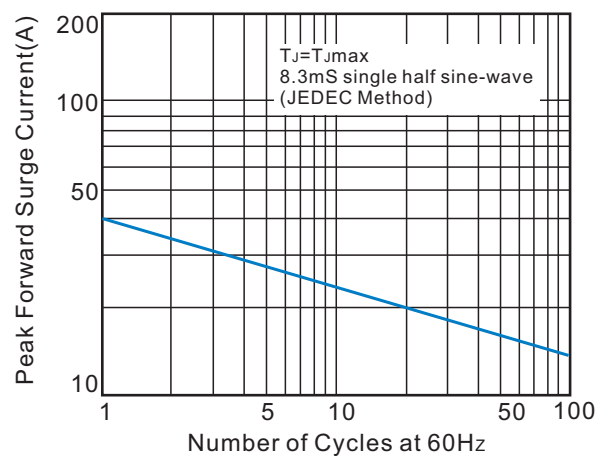


Fig.6 Maximum Non-Repetitive Peak Forward Surge Current Uni-Directional Only

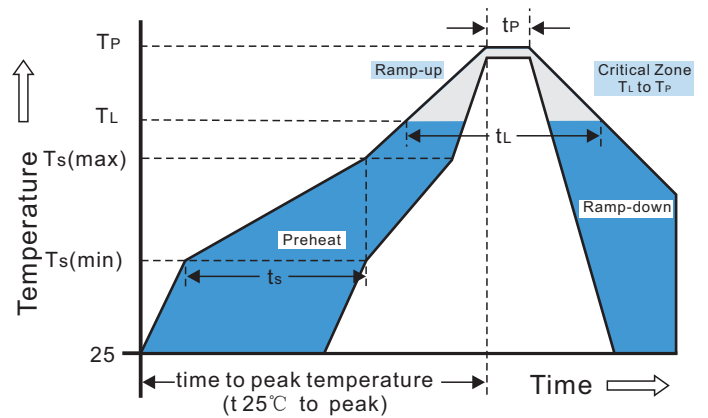


## Recommended Soldering Conditions

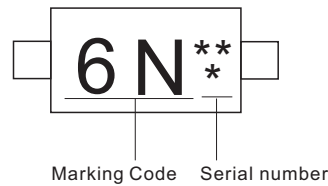
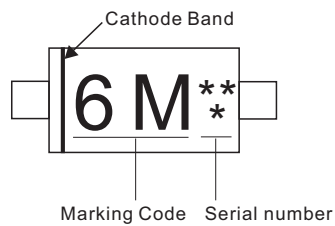
### Recommended Conditions

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)( $t_s$ )	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



## Tape And Reel Specification

Symbol	Ea Per Reel	REEL DIA (mm)	Industry Standard
TECA***	3000	178	EIA RS-481

