

**SMC Series 1500W Low Capacitance Transient Voltage Suppressor**

Rev.2.0

Type: YZPST-SMCJ(G)LCE7.5A--TVS

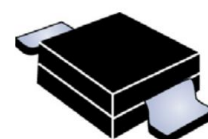
**DESCRIPTION:**

This high-reliability surface mount Transient Voltage Suppressor (TVS) product family includes a rectifier diode in series with and in the opposite direction to the primary TVS protection diode. The circuit being protected sees only the rectifier diode's low 100 pF capacitance. They are available in either a DO-215AB (gull-wing) or DO-214AB (J-bend) package and RoHS compliant versions are available. The low capacitance of these TVS devices allows them to be applied to the protection of high-frequency signal and communication lines in inductive switching environments or systems exposed to the secondary effects of lightning per IEC61000-4-5 as well as RTCA/DO-160D or ARINC 429 for airborne avionics. They also protect from ESD and EFT per IEC61000-4-2 and IEC61000-4-4.



**DO-214AB  
(SMCJ) Package**

SMCJ



**DO-215AB  
(SMCG) Package**

SMC

**FEATURES:**

- ✧ Low capacitance of 100 pF or less.
- ✧ Molding compound flammability rating: UL94V-O.
- ✧ Two different terminations available in C-bend (modified J-bend with DO-214AB) or Gull-wing (DO-215AB).
- ✧ Screening available in reference to MIL-PRF-19500. Refer to High Reliability Up-Screened Plastic Products Portfolio for more details on the screening options. (See part nomenclature for all available options.)
- ✧ RoHS compliant versions available.

**APPLICATIONS / BENEFITS:**

- ✧ 1500 watts peak pulse power at 10/1000  $\mu$ s.
- ✧ Low capacitance for high frequency data line protection to 1 MHz.
- ✧ Protection for aircraft fast data rate lines up to level 5 waveform 4 and level 2 waveform 5A in
- ✧ RTCA/DO-160D (also see MicroNote 130) & ARINC 429 with bit rates of 100 kb/s (per ARINC 429,

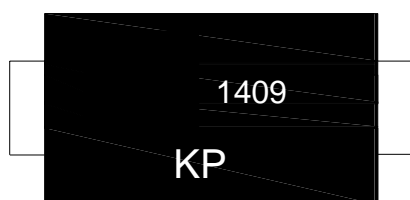
- ✧ Part 1, par 2.4.1.1).
- ✧ IEC61000-4-2 ESD 15 kV (air), 8 kV (contact).
- ✧ IEC61000-4-5 (lightning) as further detailed in LCE6.5 thru LCE170A data sheet.
- ✧ T1/E1 line cards.
- ✧ Base stations, WAN & XDSL interfaces.
- ✧ CSU/DSU equipment.

## ABSOLUTE MAXIMUM RATINGS (T<sub>A</sub>=25°C, RH=45%-75%, unless otherwise noted)

Parameter	Symbol	Value	Unit
Storage temperature range	T <sub>stg</sub>	-65 to +150	°C
Operating junction temperature range	T <sub>j</sub>	-65 to +150	°C
Thermal Resistance Junction-to-Lead <sup>(1)</sup>	R <sub>θJL</sub>	20	°C/W
Steady state power dissipation at T <sub>L</sub> =75°C	P <sub>M(AV)</sub>	5.0	W
Clamping Factor @ Full Rated Power @ 50 % Rated Power	CF	1.4 1.30	
Peak pulse power dissipation on 10/1000μs waveform	P <sub>PP</sub>	1500	W
t <sub>clamping</sub> (0 volts to V <sub>(BR)</sub> min.)	t <sub>clamping</sub>	< 5x10 <sup>-9</sup>	S

**Notes:** 1. Typical junction to lead (tab) at mounting plane.

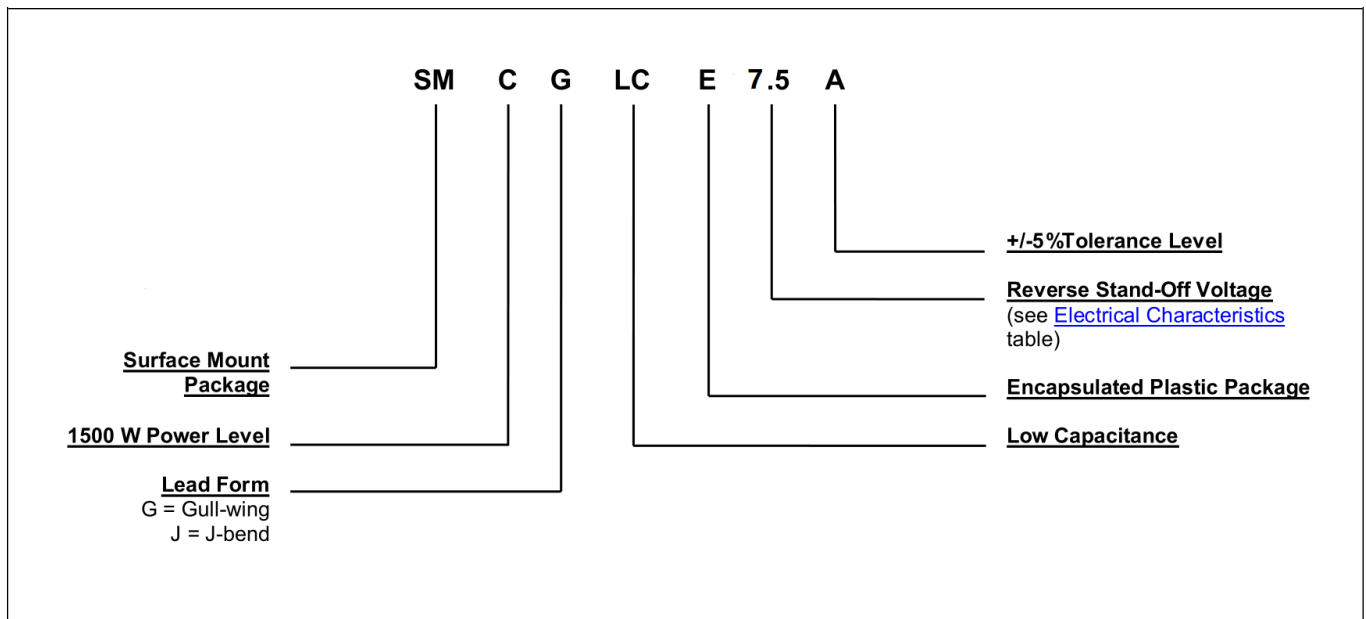
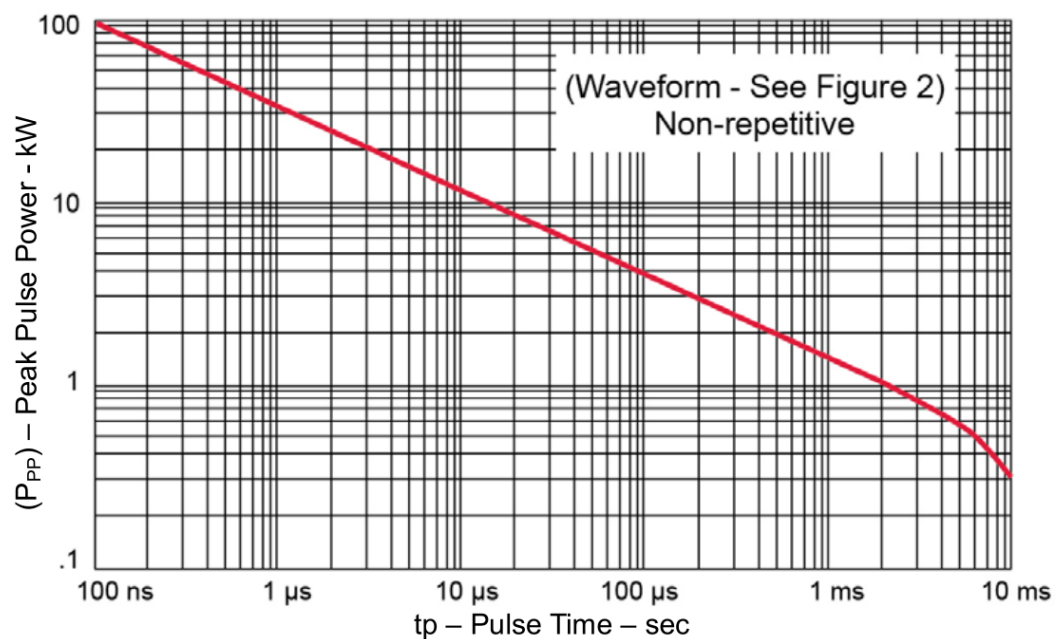
## MARKING



KP : Device Marking Code  
1409 : In ninth week, 2014

**ELECTRICAL CHARACTERISTICS** ( $T_A=25^{\circ}\text{C}$ )

Parameter	Test Conditions	Min.	Typ.	Max.	Unit
Reverse Stand-Off Voltage $V_{WM}$			7.5		V
Maximum Reverse Leakage @ $V_{WM}$ $I_D$	$V_D = V_{WM}$			250	$\mu\text{A}$
Breakdown Voltage $V_{(BR)} @ I_{(BR)}$	$I_{(BR)} = 10\text{mA}$	8.33		10.2	V
Maximum Capacitance	<b>0 Volts, <math>f = 1\text{ MHz}</math></b>			100	pF
Maximum Peak Pulse Current $I_{PP} @ 10/1000\text{Amps}$	10/1000 $\mu\text{s}$	100			A
Maximum Clamping Voltage @ $I_{PP}$ $V_C$	10/1000 $\mu\text{s}$ , $I_T = I_{PPM}$			12.9	V
Working Inverse Blocking Voltage $V_{WIB}$			75		V
Inverse Blocking Leakage Current $I_{IB}$			10		$\mu\text{A}$
Peak Inverse Blocking Voltage $V_{PIB}$			100		V

**ORDERING INFORMATION****RATINGS AND V-I CHARACTERISTICS CURVES** ( $T_A=25^\circ\text{C}$ , unless otherwise noted)

**FIGURE 1**  
Peak Pulse Power vs. Pulse Time

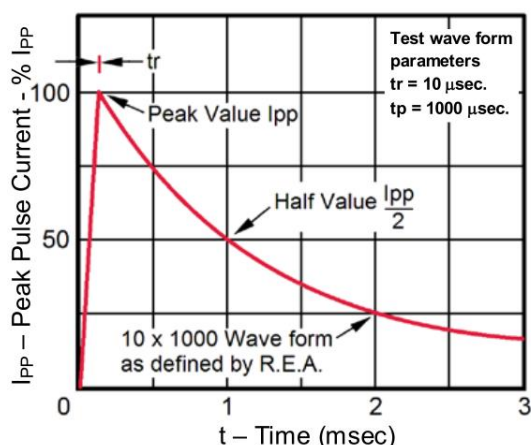


FIGURE 2 Pulse Waveform

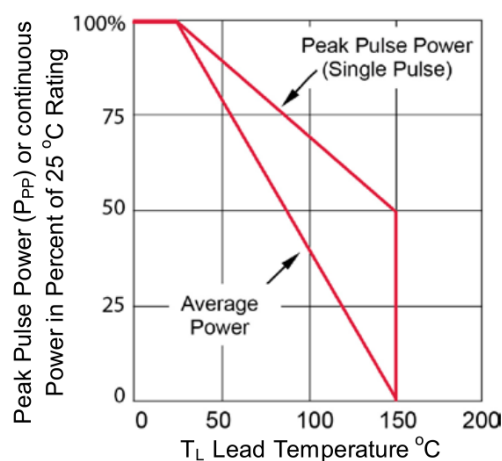
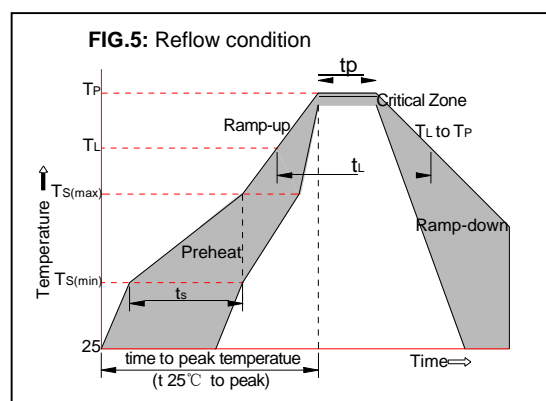


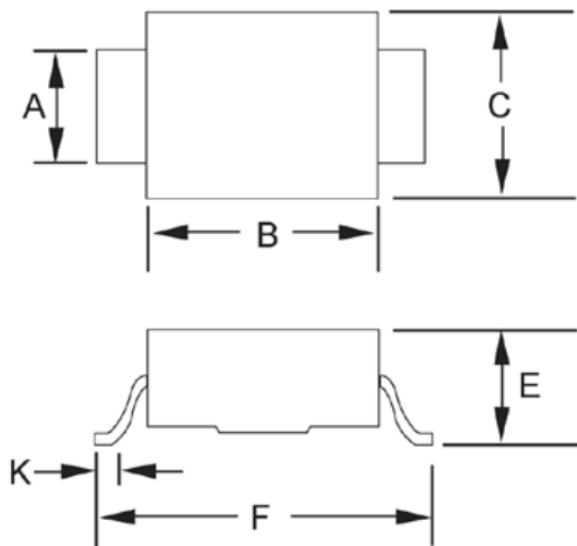
FIGURE 3 Derating Curve

## SOLDERING PARAMETERS

Reflow Condition		Pb-Free assembly (see FIG.5)
Pre Heat	-Temperature Min ( $T_{s(min)}$ )	+150°C
	-Temperature Max ( $T_{s(max)}$ )	+200°C
	-Time (Min to Max) ( $t_s$ )	60-180 secs.
Average ramp up rate (Liquid us Temp ( $T_L$ ) to peak)		3°C/sec. Max
$T_{s(max)}$ to $T_L$ - Ramp-up Rate		3°C/sec. Max
Reflow	-Temperature ( $T_L$ ) (Liquid us)	+217°C
	-Temperature ( $t_L$ )	60-150 secs.
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



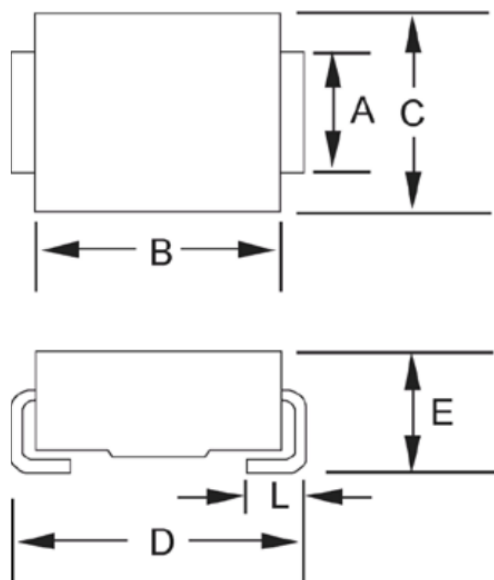
## PACKAGE MECHANICAL DATA



## SMCJ (DO-215AB)

Ltr	Dimensions			
	Inch		Millimeters	
	Min	Max	Min	Max
A	.115	.121	2.92	3.07
B	.260	.280	6.60	7.11
C	.220	.245	5.59	6.22
E	.077	.110	1.95	2.80
F	.380	.400	9.65	10.16
K	.025	.040	0.635	1.016

NOTES: Dimension "E" exceeds the JEDEC outline as shown.  
Typical Standoff Height: 0.004" – 0.008" (0.1 mm – 0.2 mm).

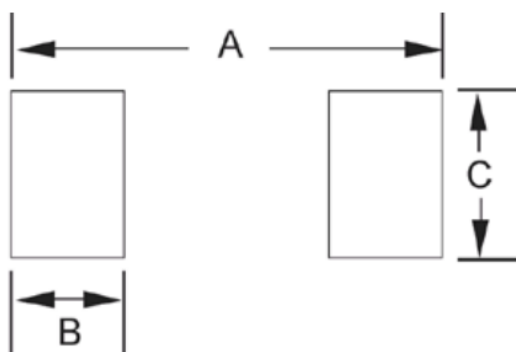


## SMCJ (DO-214AB)

Ltr	Dimensions			
	Inch		Millimeters	
	Min	Max	Min	Max
A	.115	.121	2.92	3.07
B	.260	.280	6.60	7.11
C	.220	.245	5.59	6.22
D	.305	.320	7.75	8.13
E	.077	.110	1.95	2.80
L	.030	.060	.760	1.52

NOTES: Dimension "E" exceeds the JEDEC outline in height as shown.  
Typical Standoff Height: 0.004" – 0.008" (0.1 mm – 0.2 mm).

## PAD LAYOUT



SMCG (DO-215AB)		
Ltr	Inch	Millimeters
<b>A</b>	.510	12.95
<b>B</b>	.110	2.79
<b>C</b>	.150	3.81

SMCJ (DO-214AB)		
Ltr	Inch	Millimeters
<b>A</b>	.390	9.90
<b>B</b>	.110	2.79
<b>C</b>	.150	3.81