

Transient Voltage Suppression Diodes

Description

The KLTKAK6 in SMT0-218 package provide the enhanced quality, easy manufacturing than typical through-hole TVS components. They can be connected in series and/or parallel to create various capability and flexible protection solutions.

Features

- Bi-directional
- Low clamping and slope resistance
- For automatic pick and place assembly and reflow process to reduce the manufacturing cost and increase the soldering quality compared to axial leads package
- Compact surface mount package design
- Meet MSL level 1, per J-STD-020, LF Maximum peak of 245 °C
- Pb-free E3 means 2nd level interconnect is Pb-free and the terminal finish material is tin (Sn)
- ESD follow IEC 61000-4-2
- Surge protection of lightning in accordance with IEC61000-4-5
- Halogen free and RoHS compliant
- Tube or tape and reel pack options available

Applications

- Communication Equipment
- Security & Protection
- Industrial Control Equipment
- Power Supply
- Automotive Electronics
- New Energy
- Lightning Protection

Maximum Ratings and Characteristics

(Ratings at 25 °C ambient temperature unless otherwise specified.)

Parameter	Symbol	Value	Unit
Storage Temperature Range	T_{STG}	-55 to 150	°C
Operating Junction	T_J	-55 to 125	°C
Current Rating (8/20 μ s wave)	I_{PP}	6	kA

SMT0-218



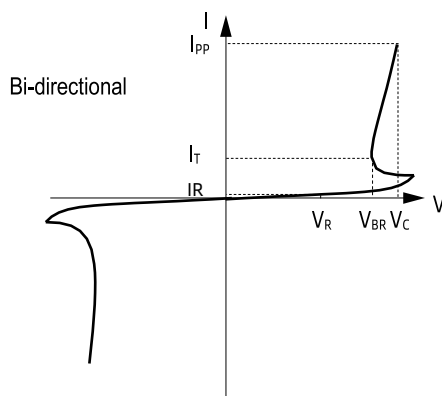
Functional Diagram



Electrical Characteristics (T_A=25 °C unless otherwise noted)

Part Number	Stand-off Voltage V _R	Max. Reverse Leakage I _R @V _R	Breakdown Voltage V _{BR} @I _T Min Max		Test Current I _T	Max. Clamping Voltage V _{CL} @Peak Pulse Current (I _{PP})			Max. Temp Coefficient of V _{BR}	Max. Capacitance 0 Bias 10KHz
						V _{CL}	I _{PP} (8/20 μs)	I _{PP} (10/350 μs)		
			Min	Max			Min	Typical		
	(V)	(μA)	(V)		(mA)	(V)	(A)	(A)	(%/°C)	(nF)
KLTKAK6-058C	58	10	64	70	10	110	6000	900	0.1	6.5
KLTKAK6-066C	66	10	72	80	10	120	6000	900	0.1	5.5
KLTKAK6-076C	76	10	85	95	10	140	6000	900	0.1	4.5

I-V Curve Characteristics



Performance Curve for Reference (T_A=25 °C unless otherwise noted)

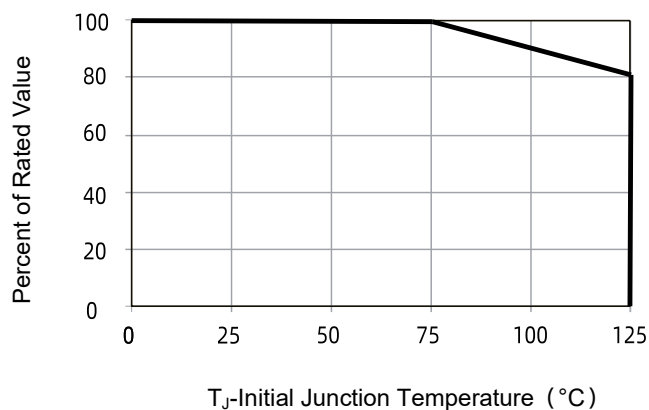


FIGURE 1 Peak Power Derating

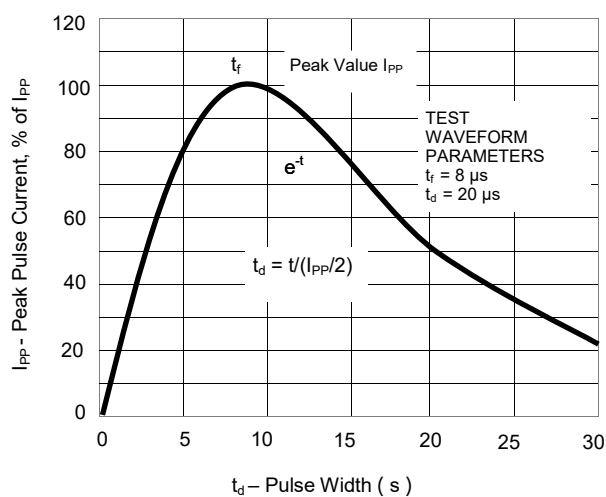
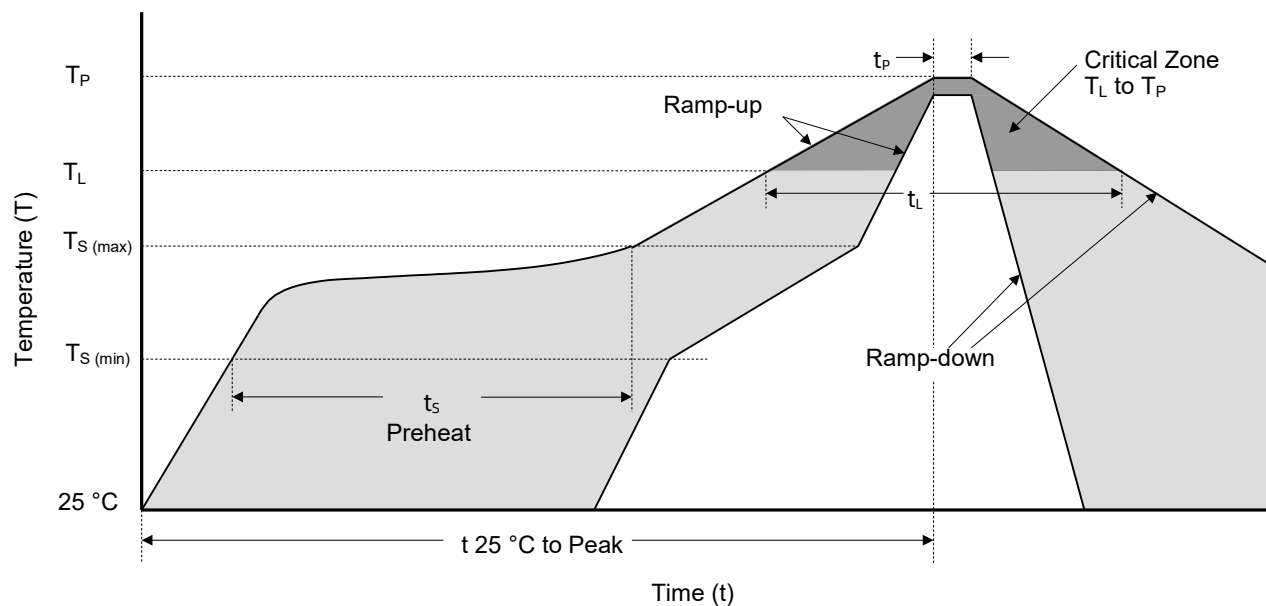


FIGURE 2 Pulse Waveform

Soldering Parameters



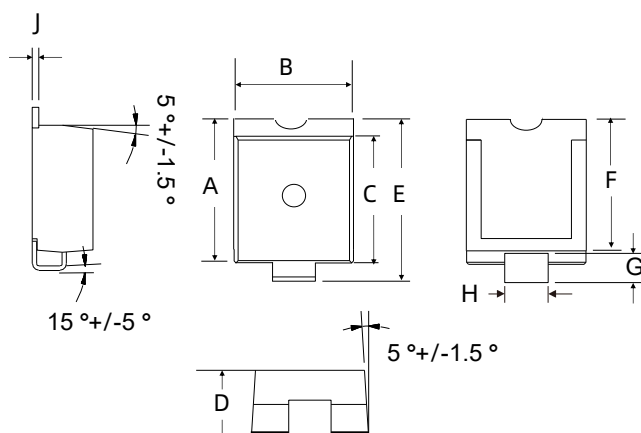
Reflowing Condition

Reflow Soldering Parameters		Lead-Free Assembly
Pre-heat	Temperature Min (T _{S (min)})	150 °C
	Temperature Max (T _{S (max)})	200 °C
	Time (min to max) (t _s)	60 ~ 120 seconds
Average Ramp Up Rate (Liquidus Temp (T _L) to Peak)		3 °C / second max.
T _{S (max)} to T _L Ramp-up Rate		3 °C / second max.
Reflow	Temperature (T _L) (Liquidus)	217 °C
	Time (min to max) (t _L)	60 ~ 150 seconds
Peak Temperature (T _P)		245 ^{+0/-5} °C
Time of within 5 °C of Actual Peak Temperature (t _p)		20 ~ 40 seconds
Ramp-down Rate		6 °C / second max.
Time from 25 °C to Peak Temperature		8 Minutes max.
Do Not Exceed		245 °C

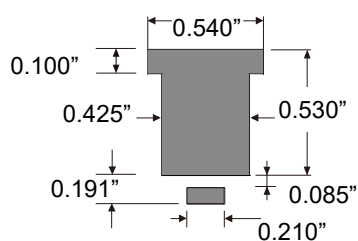
Wave Soldering (Solder Dipping)

Peak Temperature	260 °C+0 /- 5 °C
Dipping Time	10 seconds
Soldering Number	1 time

Package Outline Dimensions (SMTO-218)



Note: Coplanarity of solder side is controlled within 0.10 mm



Mounting Pad Layout (Inch)

Symbol	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	15.78	16.63	0.621	0.655
B	13.43	15.09	0.529	0.594
C	13.83	14.24	0.544	0.561
D	6.94	7.24	0.273	0.285
E	17.82	18.72	0.702	0.737
F	14.40	14.76	0.567	0.581
G	1.88	2.84	0.074	0.112
H	4.89	5.65	0.193	0.222
J	0.72	0.85	0.028	0.033

Part Number	Weight (Typical)	Packaging Option	QTY' s
KLTKAK6	4.33 g	Tape & Reel – 32mm/13" tape	400 PCS