

TVS Protection Devices

Features:

- IEC 61000-4-2 (ESD) $\pm 30\text{kV}$ (air), $\pm 30\text{kV}$ (contact).
- Surge rate: $10/700\mu\text{s}$, 4kV (PIN 1 or 3 to 2).
- Built-in strain relief.
- Low leakage.
- Bidirectional protection.
- Excellent clamping capability.
- Very fast response time.

Applications:

- POE

Mechanical Data

- Case: SMC-3L molded plastic.
- Epoxy: UL 94V-0 rate flame retardant.
- Terminals: solderable per MIL-STD-750, method 2026.
- Meet MSL level 1 per J-STD-020, and high temperature soldering guaranteed: $260^\circ\text{C}/10\text{sec}$.
- Mounting position: Any.
- RoHS Compliant.

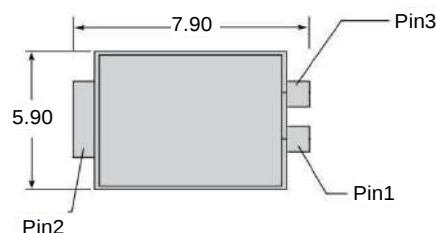
Circuit Diagram

- Terminal Connections: See Diagram Below Right

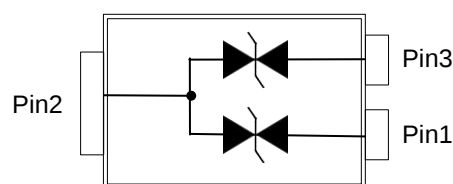
Absolute Maximum Ratings ($T_A=25^\circ\text{C}$ unless otherwise noted)

Parameter	Symbol	Value	Unit
Peak pulse voltage at $10/700\mu\text{s}@40\Omega$ waveform	V_{PP}	4000	V
Peak pulse current at $1.2/50-8/20\mu\text{s}@2\Omega$ waveform	I_{PP}	500	A
ESD per IEC 61000-4-2 (Air) ESD per IEC 61000-4-2 (Contact)	V_{ESD}	± 30 ± 30	kV
Operating junction temperature range	T_J	- 55 to +150	$^\circ\text{C}$
Storage temperature range	T_{STG}	- 55 to +150	$^\circ\text{C}$

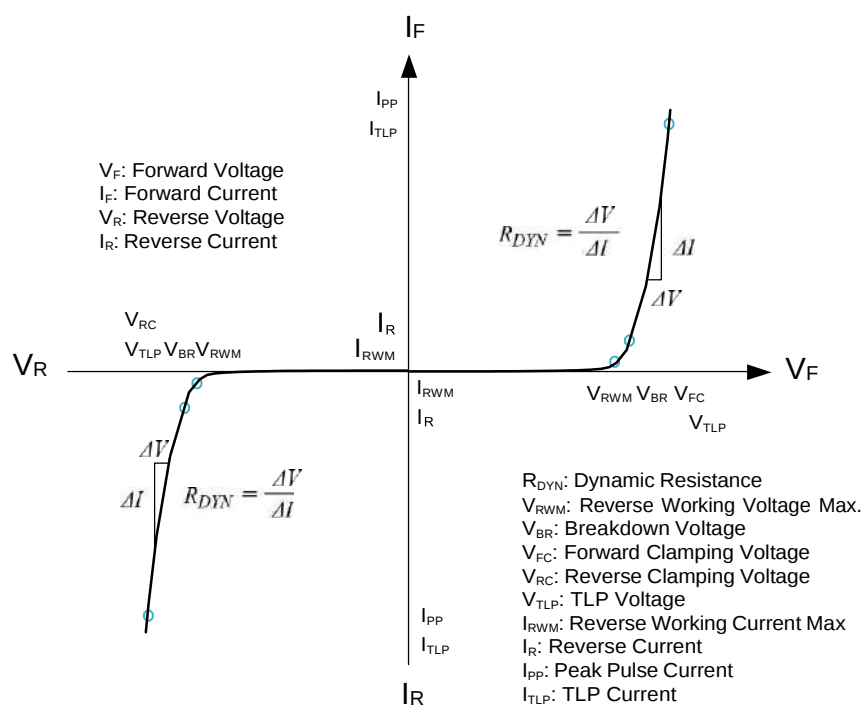
SMC-3L



Dimensions in millimeter



I-V Curve Characteristics



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

Parameter	Symbol	Min	Typ	Max	Units	Test Condition
Reverse Working Voltage	V _{RWM}			58	V	
Reverse Breakdown Voltage	V _{BR}	64.4		71.2	V	I _T =1mA, Pin 1 to Pin 2 or Pin 3 to Pin 2
Reverse Leakage Current	I _R			5.0	μA	V _{RWM} =58V, Pin 1 to Pin 2 or Pin 3 to Pin 2
Clamping Voltage	V _C			93.6	V	V _{PP} =4KV, t _p =10/700μs@40Ω, Pin 1 to Pin 2 or Pin 3 to Pin 2
Clamping Voltage	V _C			95	V	I _{PP} =500A, 1.2/50μs-8/20μs@2Ω, Pin 1 to Pin 2 or Pin 3 to Pin 2
Junction Capacitance	C _J		1800		pF	V _{DC} =2V, V _{RMS} =1V, f = 1MHz, Pin 1 to Pin 2 or Pin 3 to Pin 2

Ratings and Characteristics Curves ($T_A=25^{\circ}\text{C}$ unless otherwise noted)

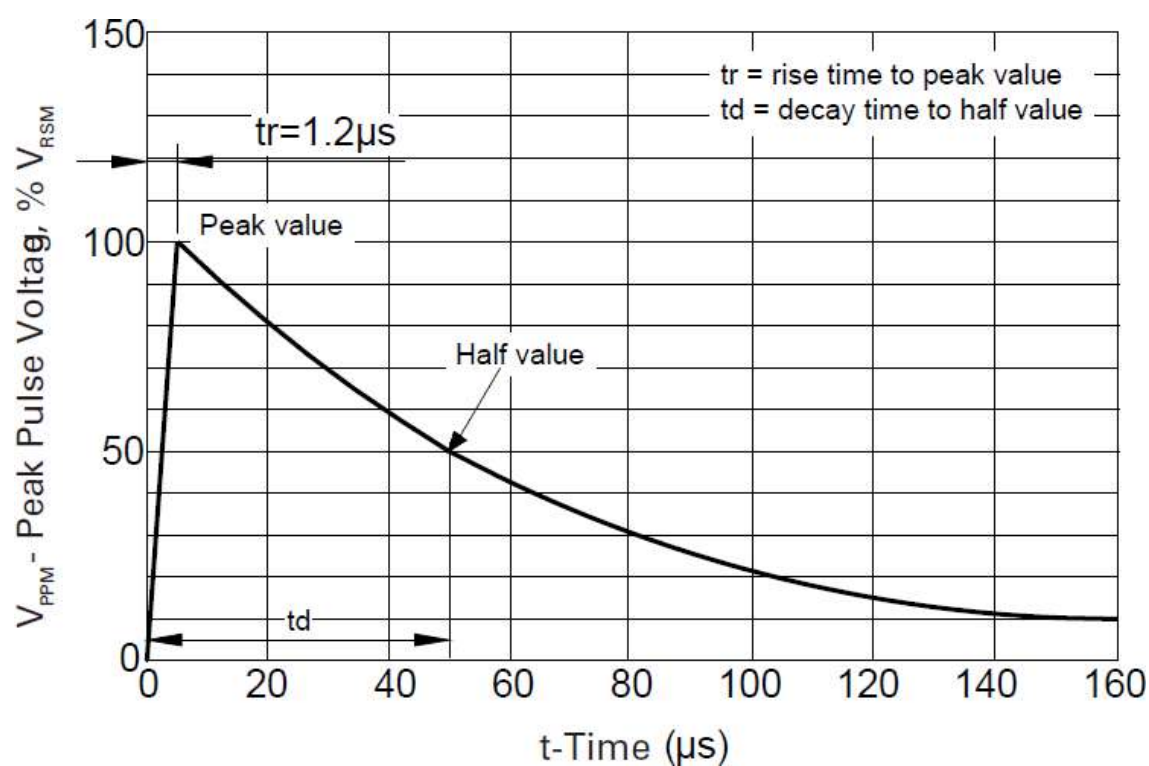


Figure 1 - 1.2/50 μs Pulse Waveform

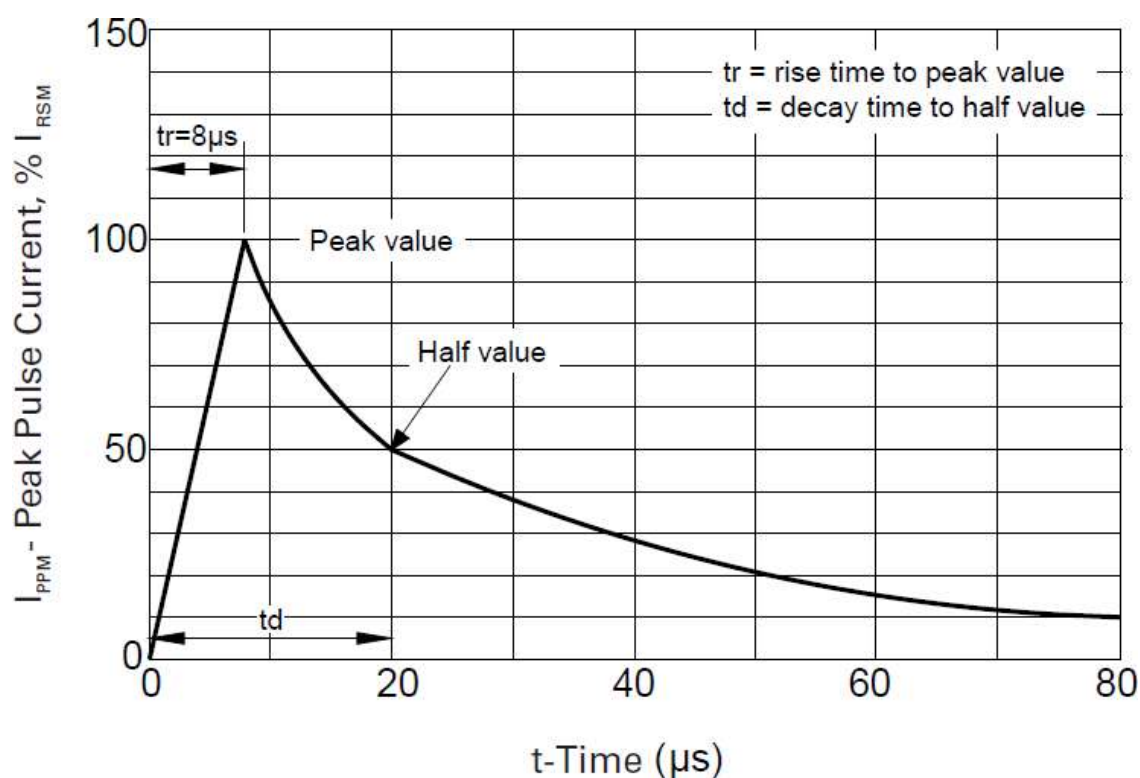


Figure 2 - 8/20 μs Pulse Waveform

Ratings and Characteristics Curves (T_A=25°C unless otherwise noted)

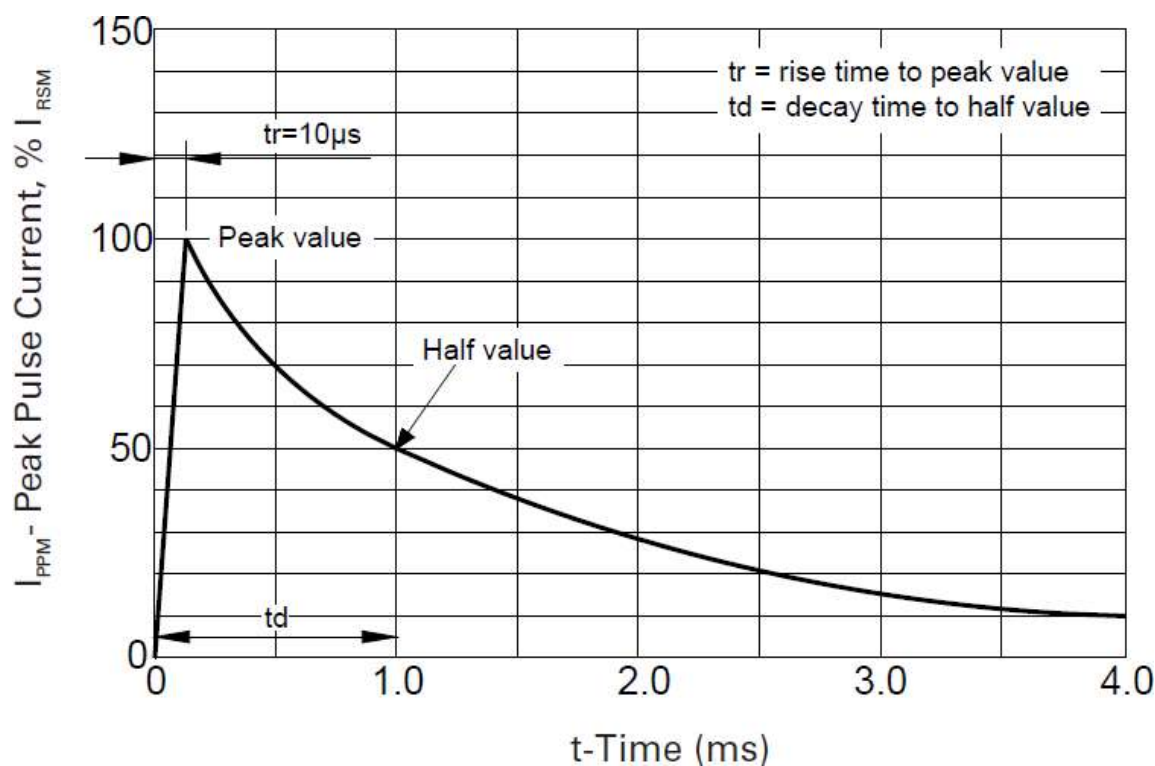


Figure 3 - 10/1000µs Pulse Waveform

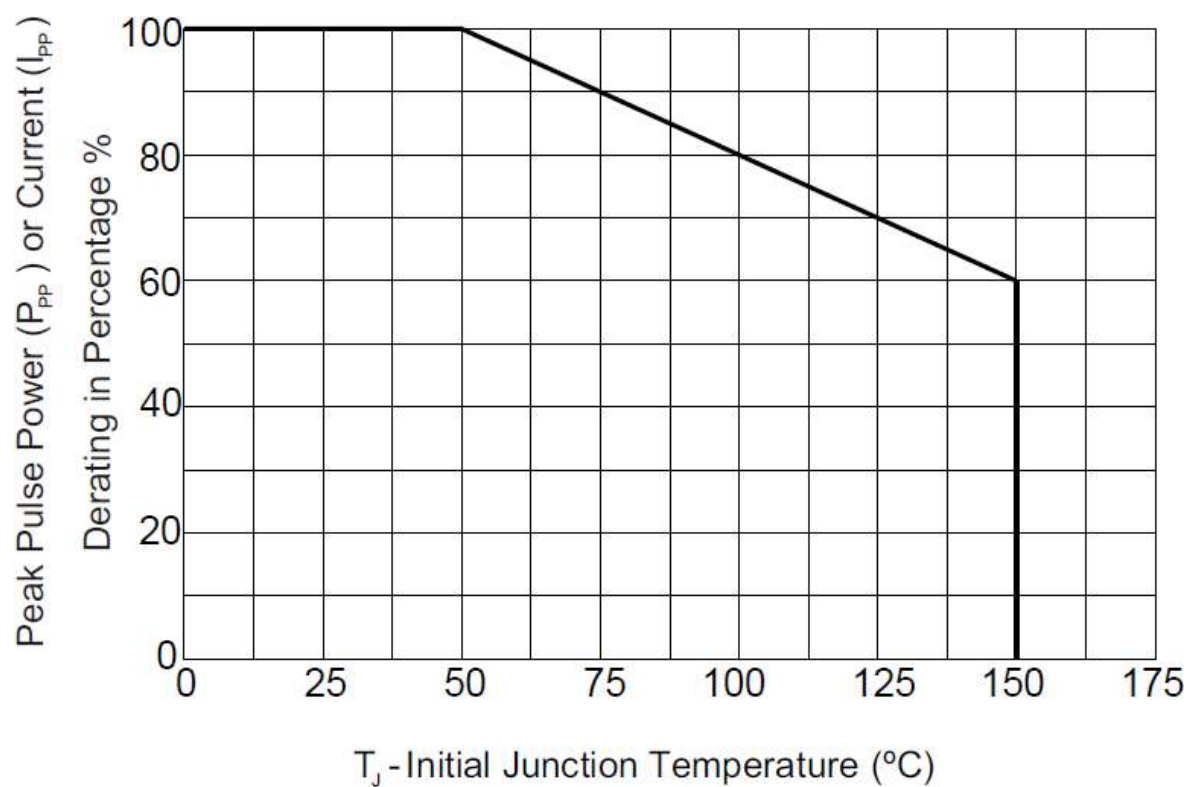
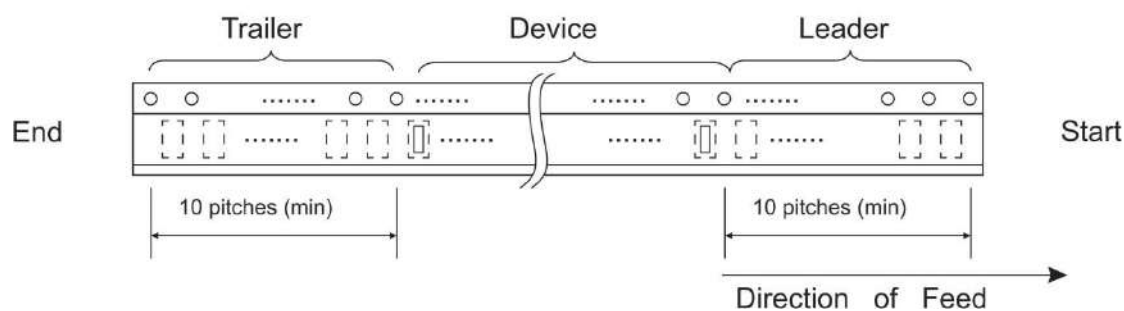
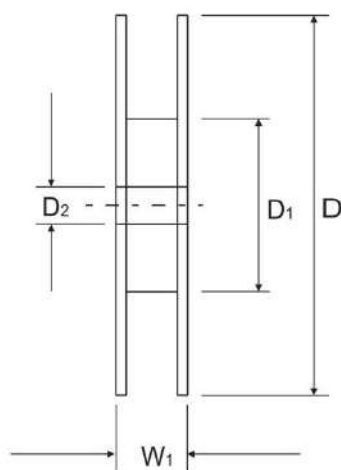
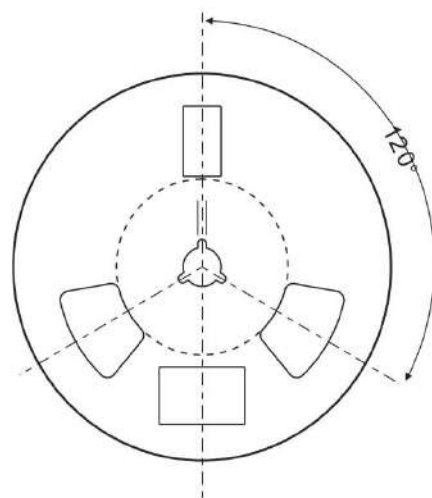
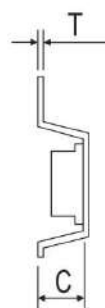
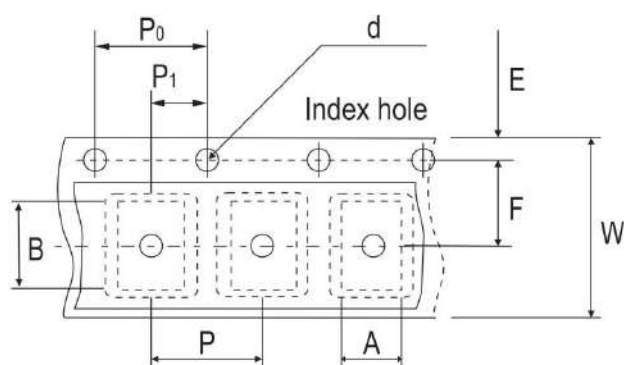


Figure 4 - Peak Pulse Power Derating Curve

Reel Taping Specification

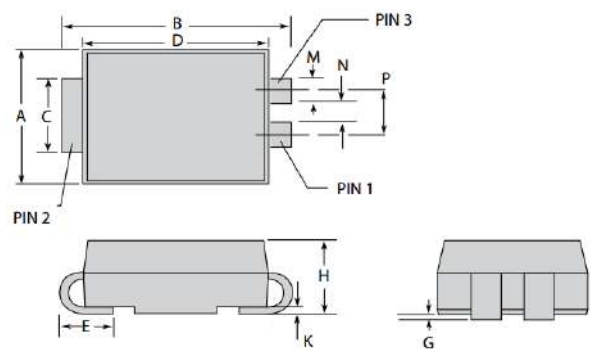


SMC-3L	SYMBOL	A	B	C	d	T	D	D1	D2
	(mm)	See Note 1			1.55 ± 0.05	0.40 (Max.)	330	50.00 (Min.)	13.00 + 0.50 - 0.20
	(inch)				0.061 ± 0.002	0.016 (Max.)	13	1.969 (Min.)	0.512 + 0.020 - 0.008
	SYMBOL	E	F	P	P0	P1	W	W1	W2
	(mm)	1.75 ± 0.10	7.50 ± 0.05	8.00 ± 0.10	4.00 ± 0.10	2.00 ± 0.05	16.00 ± 0.10	16.40 + 2.00 - 0.00	22.40 (Max.)
	(inch)	0.069±0.004	0.295±0.002	0.315±0.004	0.157±0.004	0.079±0.002	0.630±0.004	0.646 + 0.079 - 0.000	0.882 (Max.)

Notes: 1. A, B, and C the clearance between the component and the cavity must be within 0.5 mm max. for 8 mm tape and 12 mm tape, 1.0 mm max. for 16mm tape and 24 mm tape.

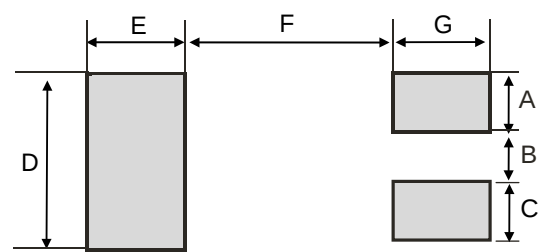
Package Mechanical Data

DIM	Inches		Millimeters	
	Min	Max	Min	Max
A	0.216	0.246	5.49	6.25
B	0.297	0.323	7.55	8.20
C	0.108	0.128	2.75	3.25
D	0.260	0.291	6.60	7.40
E	0.030	0.063	0.75	1.60
G	0.000	0.012	0.00	0.30
H	0.079	0.106	2.00	2.70
K	0.006	0.016	0.15	0.41
M	0.025	0.043	0.63	1.10
N	0.039	0.059	1.00	1.50
P	0.083BSC		2.1BSC	



Suggested PAD Layout

SIZE	SMC-3L	
	Inches	Millimeters
A	0.050	1.28
B	0.033	0.85
C	0.050	1.28
D	0.130	3.3
E	0.095	2.4
F	0.165	4.2
G	0.095	2.4



Marking Code

Part Number	
KLM4K3T58C	
4K58C: Marking Code XXXX: Date Code	

Ordering Information

Part Number	Package	Base qty	Reel Size	Delivery mode
		(pcs)	(inch)	
KLM4K3T58C	SMC-3L	3000	13	Tape and reel