MAXINMICRO ELECTRONICS

nCLAMP™ Surface Mount SMB05K58CA-FL

RoHS Compliant

Features

♦1kV peak pulse voltage capability at 1.2/50-8/20μs@2Ω waveform

♦4kV peak pulse voltage capability at 10/700μs@waveform

♦2kW peak pulse power capability at 10/1000μs waveform

♦Low clamping capability nCLAMP™

♦Typical failure mode is a short circuit condition for current events exceeding component rating

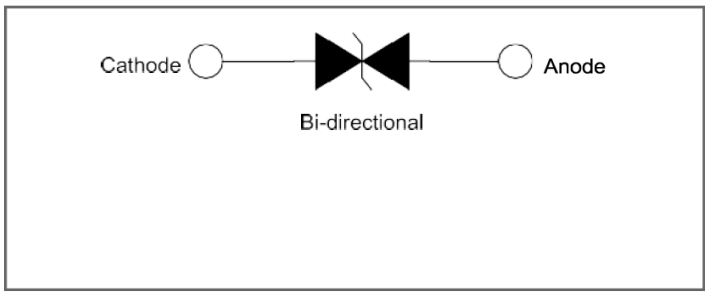
♦Plastic package is flammability rated V-0 per UL-94

♦Meet MSL level1, per J-STD-020, lead-frame maximum peak of 260°C

Applications

This low clamp TVS series are ideal for the transient voltage clamp protection of I/O Interfaces, DC power line bus and other circuits used in Telecom electronic applications

Function Diagram



Maximum Ratings and Thermal Characteristics (TA=25℃ unless otherwise noted)			
Parameter	Symbol	Value	Unit
Peak pulse voltage at 1.2/50μs 8/20μμ@2Ω waveform	V_{PP}	1000	V
Power Dissipation on Infinite Heat Sink at TL=50℃	P_D	5.0	W
Operating Temperature Range	T_J	-55 to 150	℃
Storage Temperature Range	T_{STG}	-55 to 150	℃

Characteristics (T =25°C unless otherwise noted)

Part Number (Bi)	Key Marking	Reverse Stand off Voltage V_R (Volts)	Breakdown Voltage V_{BR} (Volts) @ I_T		Test Current I_T (mA)	IR@VR MAX (uA)	VH① TYP (V)	VC@Vpp ① MAX (V)	VC@Vpp ② MAX (V)	VC@Ipp ③ MAX (V)	Ipp③ MAX (A)
			MIN(V)	MAX(V)							
SMB05K58CA-FL	F058CFL	58	60.0	72.0	1	1	45	85	85	93.6	21.37

① Surge waveform: 1.2/50μs-8/20μs@2Ω Vpp:1000V

② Surge waveform: 10/700μs@40Ω Vpp:4000V

③ Surge waveform: 10/1000μs Ppp:2000W

V_R: Stand-off voltage -- Maximum voltage that can be applied

V_{BR}: Breakdown voltage

I_T: Testing current

I_R: Reverse leakage current

V_H: Holding voltage

V_C: Clamping voltage -- Peak voltage measured across the suppressor at a specified VPP

Ratings and Characteristic Curves (T =25°C unless otherwise noted)

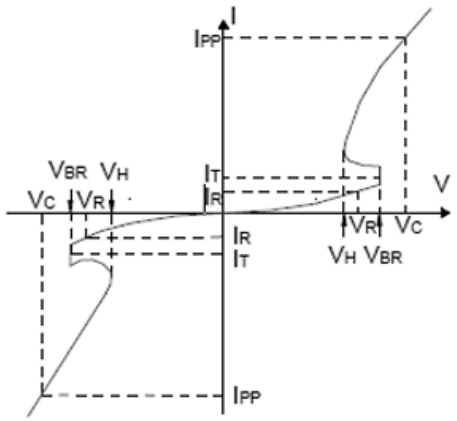


Figure 1. I-V Curve Characteristics with negative resistance

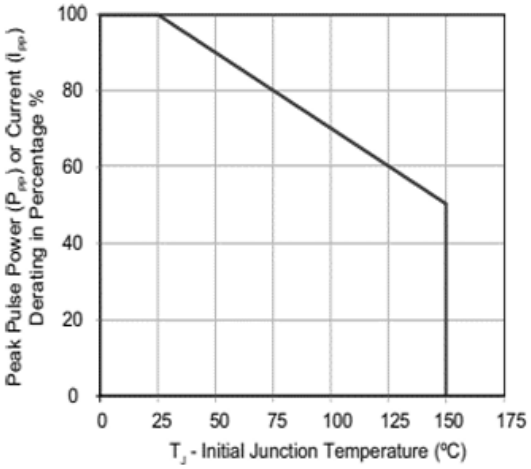


Figure 2. I-V Curve Characteristics with negative resistance

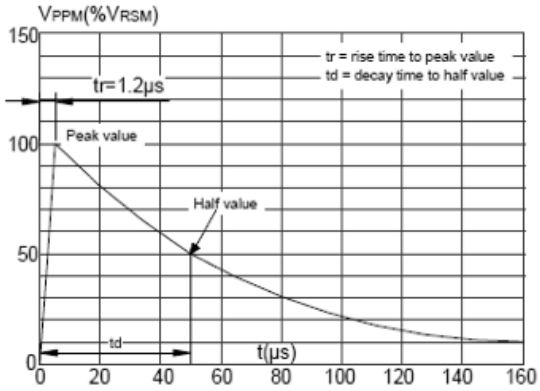


Figure 3. Pulse waveform

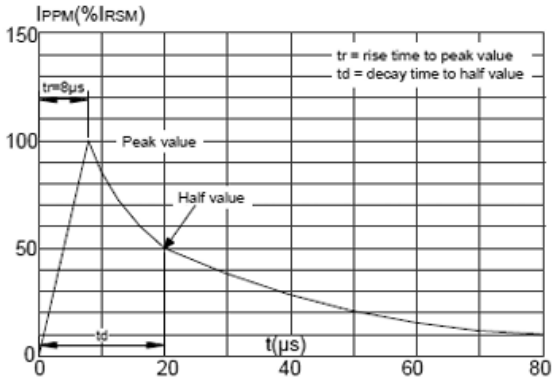
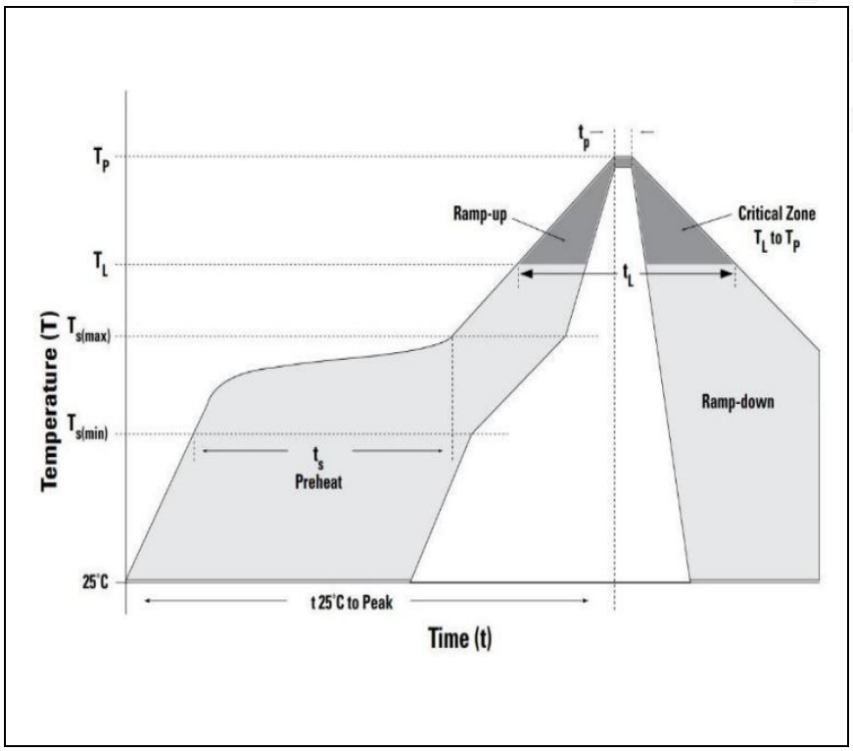


Figure 4. Pulse waveform

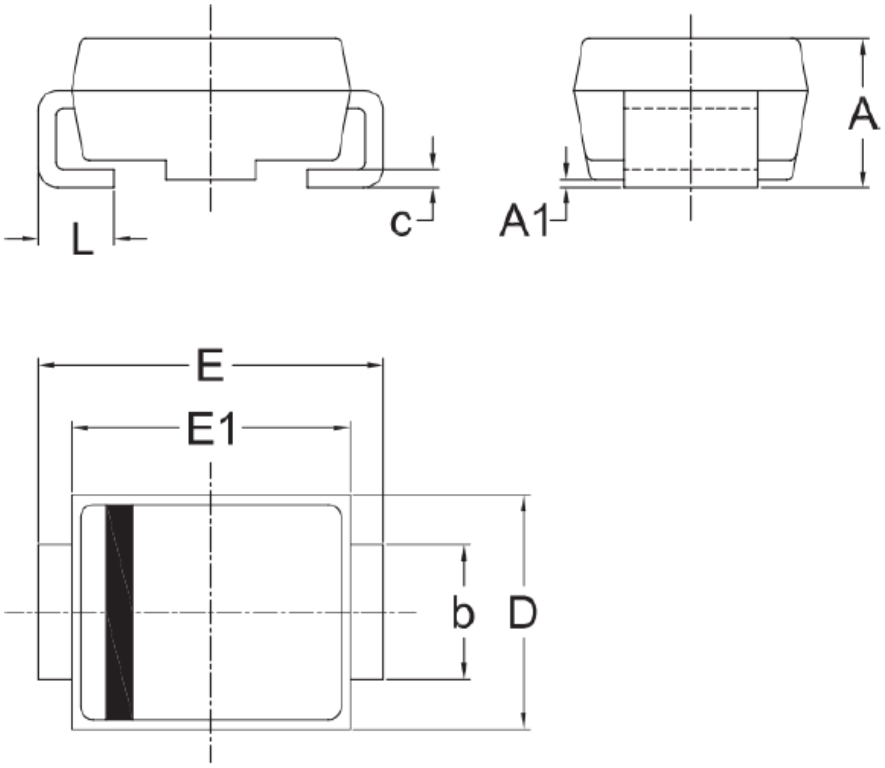
Soldering Parameters

Reflow Condition		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 secs
Average ramp up rate (Liquidus Temp (T_A) to peak		3°C/second max
$T_{S(max)}$ to T_A - Ramp-up Rate		3°C/second max
Reflow	- Temperature (T_A) (Liquidus)	217°C
	- Time (min to max) (t_s)	60 – 150 seconds
Peak Temperature (T_P)		$260^{+0/-5}$°C
Time within 5°C of actual peak Temperature (t_p)		20 – 40 seconds
Ramp-down Rate		6°C/second max
Time 25°C to peak Temperature (T_P)		8 minutes Max.
Do not exceed		260°C

Soldering profile



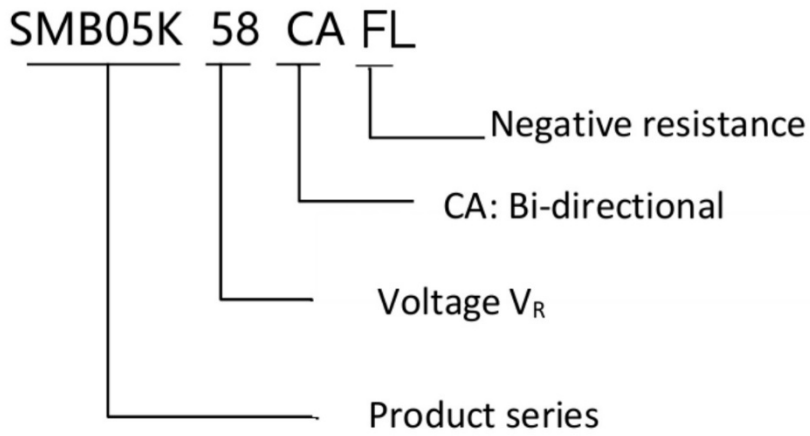
Dimensions



Unit		A	A1	b	c	D	E	E1	L
mm	MAX	2.61	0.30	2.30	0.305	3.94	5.7	4.7	1.52
	MIN	1.99	0.10	1.70	0.15	3.3	5.05	4.06	0.76

Remark :Dimensions D and E1 do not include mold flash & gate remain.

Part Numbering



Part Marking

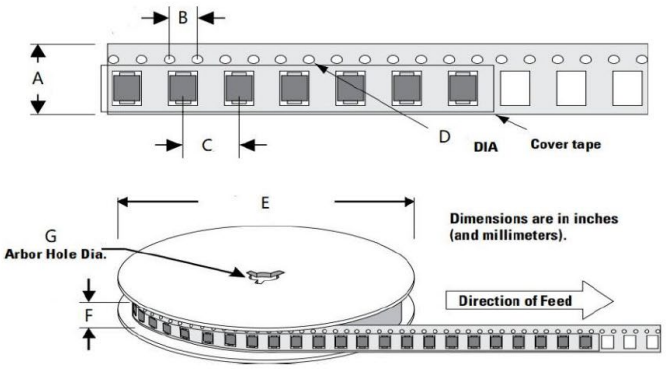
Product Type Marking Code

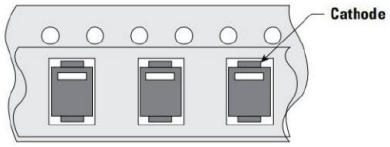
Cathode band
(for uni-directional produets only)

Packing

Part number	Package name	Small packing quantity	Packing method
SMB05K58CA-FL	DO-214AA	3000	Tape & Reel

Tape and Reel Specification





Symbol	Millimeter
A	16.00±0.10
B	4.00±0.10
C	8.00±0.10
D	1.55±0.05
E	330.20±2.00
F	19.70±2.00
G	13.30±0.30

Revision history of Specification

Version	Change Items	Effective Date
1.0	Initial Release	8-18-2022