

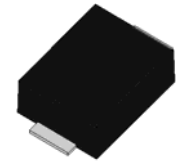


SM2KxxCF Series Transient Voltage Suppressor

Rev.1.3

FEATURES:

- ✧ Excellent clamping capability.
- ✧ Low profile package and low inductance.
- ✧ High peak pulse voltage capability at 1.2/50μs-8/20μs@2Ω waveform.
- ✧ Fast response time: typically less than 1.0ps from 0V to V_{BR} min.
- ✧ High temperature soldering: 260°C/40s at terminals.
- ✧ Plastic package has underwriters laboratory flammability 94V-0.
- ✧ Meets MSL level 1, per J-STD-020, LF maximum peak of 260°C.
- ✧ Terminal: solder plated, solderable per J-STD-002.
- ✧ For surface mounted applications in order to optimize board space.
- ✧ UL 1449 item recognized. (File No.: E494389).
- ✧ IEC61000-4-2 (ESD) ±30kV (air), ±30kV (contact).



SMBF



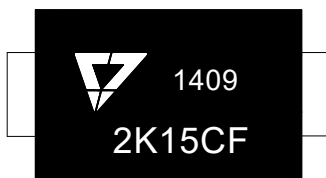
Bi-directional

Symbol

ABSOLUTE MAXIMUM RATINGS (T_A=25°C, RH=45%-75%, unless otherwise noted)

Parameter	Symbol	Value	Unit
Storage temperature range	T _{STG}	-55 to +150	°C
operating junction temperature range	T _J	-55 to +150	°C
Steady state power dissipation at T _L =75°C	P _{M(AV)}	6.5	W
Peak pulse voltage at 1.2/50μs-8/20μs@2Ω waveform	V _{PP}	4000	V

MARKING



2K15CF : Device Marking Code
 1409: In ninth week, 2014

ELECTRICAL CHARACTERISTICS(T_A=25°C)

Part Number	Marking Code	V _R	I _R @V _R	V _{BR} @I _T		I _T	V _H ^⓪	V _C @V _{PP} ^①	V _{PP} ^⓪
		V	max(μA)	min(V)	max(V)	mA	typ(V)	max(V)	V
SM2K15CF	2K15CF	15	1	16.7	18.5	1	NA	42	4000
SM2K16CF	2K16CF	16	1	17.8	19.7	1	NA	43	4000
SM2K18CF	2K18CF	18	1	20.0	22.3	1	NA	45	4000
☆SM2K20CF	2K20CF	20	1	22.0	24.5	1	21	47	4000

① Surge waveform: 1.2/50μs-8/20μs@2Ω

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

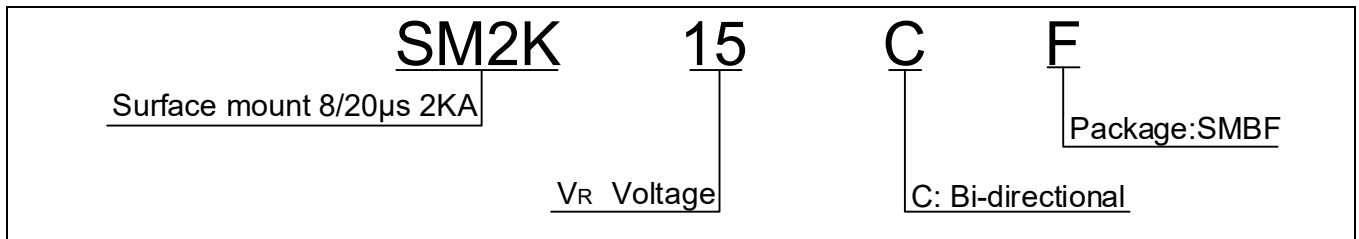
V_{BR}: Breakdown voltage

V_C: Clamping voltage -- Peak voltage measured across the suppressor at a specified V_{PP}

I_R: Reverse leakage current

☆: Products with negative resistance

ORDERING INFORMATION



RATINGS AND V-I CHARACTERISTICS CURVES (T_A=25°C, unless otherwise noted)

FIG.1:V- I curve characteristics (Bi-directional)

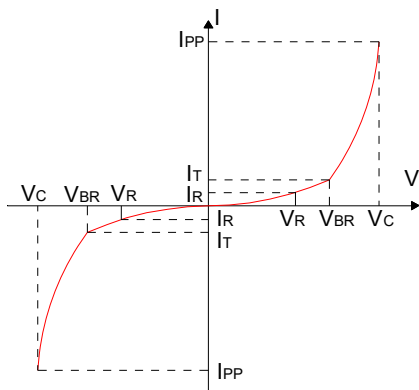


FIG.2:V- I curve characteristics (Bi-directional with negative resistance)

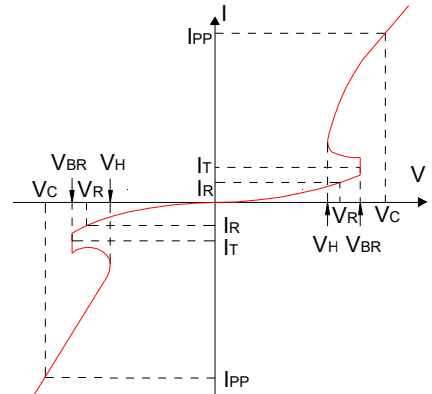


FIG.3: Pulse waveform

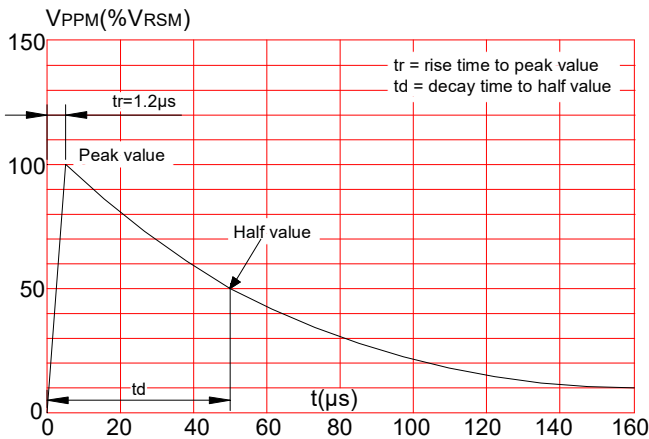


FIG.4: Pulse waveform

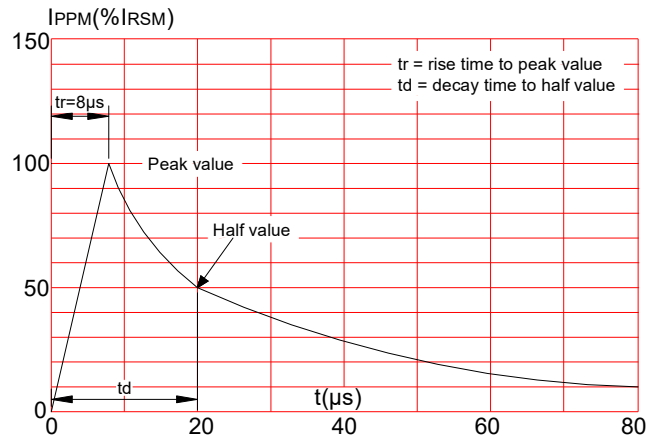
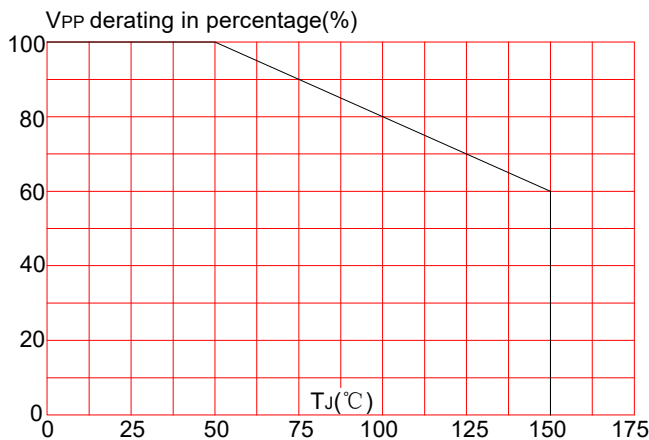
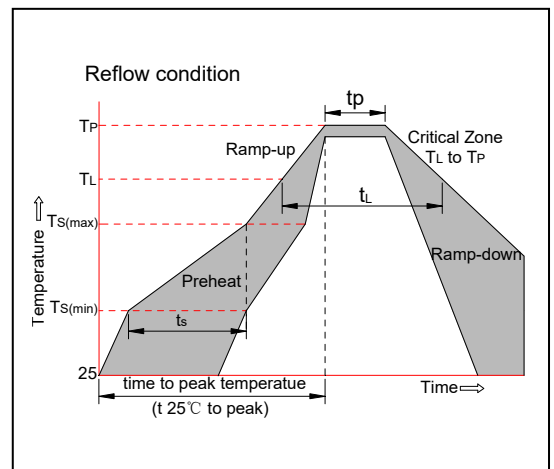


FIG.5: Pulse derating curve(1.2/50 μs)

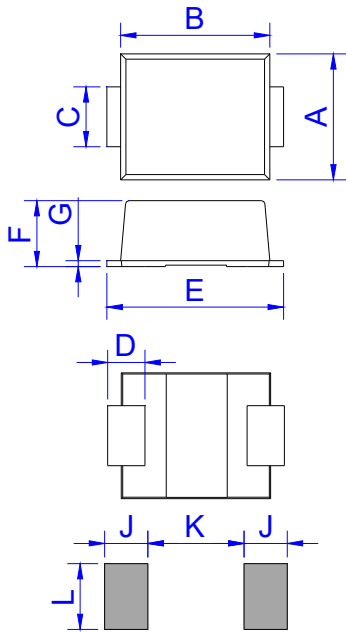


SOLDERING PARAMETERS

Reflow Condition		Pb-Free assembly (see figure at right)
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 (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)	60-150 secs.
Peak Temp (T_P)		+260(+0/-5)°C
Time within 5°C of actual Peak Temp (t_p)		20-40secs.
Ramp-down Rate		6°C/sec. Max
Time 25°C to Peak Temp (T_P)		8 min. Max
Do not exceed		+260°C



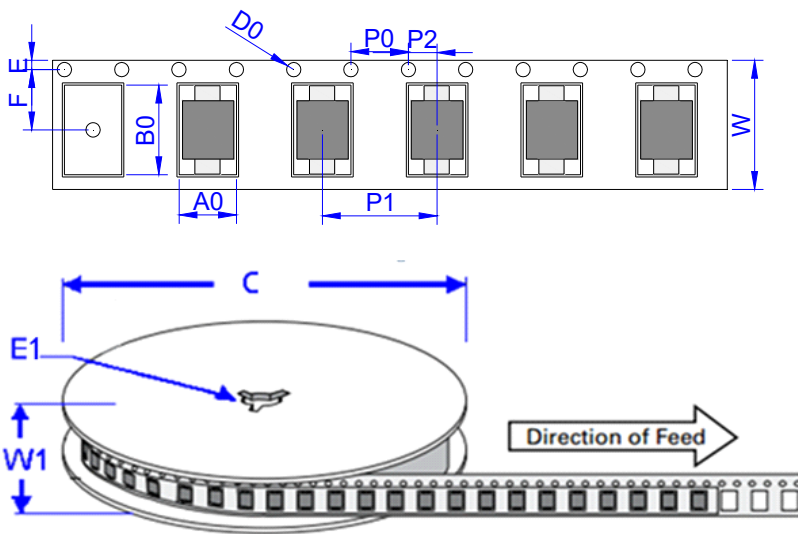
PACKAGE MECHANICAL DATA



SMBF

Ref.	Dimensions			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	3.90	4.50	0.154	0.177
B	4.65	5.15	0.183	0.203
C	1.85	2.15	0.073	0.085
D	0.60		0.024	
E	5.60	6.00	0.220	0.236
F	2.05	2.35	0.081	0.093
G	0.12	0.28	0.005	0.011
J	2.00		0.079	
K		3.20		0.126
L	2.30		0.091	

TAPE AND REEL SPECIFICATION-SMBF



Ref.	Dimensions	
	Millimeters	Inches
A0	4.50±0.3	0.177 ± 0.012
B0	6.10±0.3	0.240 ± 0.012
C	330.0	13.0
D0	1.55±0.1	0.061 ± 0.004
E	1.75±0.2	0.069 ± 0.008
E1	13.3±0.3	0.524± 0.012
F	5.5±0.2	0.217 ± 0.008
P0	4.00±0.2	0.157 ± 0.008
P1	8.00±0.2	0.315 ± 0.008
P2	2.00±0.2	0.079 ± 0.008
W	12.0±0.2	0.472 ± 0.008
W1	15.7±2.0	0.618 ± 0.079

PART No.	UNIT WEIGHT (g/PCS) typ.	REEL (PCS)	PER CARTON (PCS)	DESCRIPTION
SM2KxxCF	0.13	3,000	48,000	13 inch reel pack

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