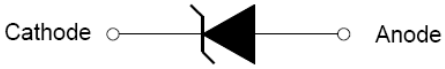
SMTF30A 3000A Transient Voltage Suppressor

Rev.1.4

DESCRIPTION:

The SMTF30A TVS is specially designed for use in D.C. line protection and any demanding applications. They can offer superior clamping characteristics. Therefore, any voltage rise due to increased current conduction is contained to a minimum, providing the best possible protection level.

SMTF



Uni-direction

Symbol

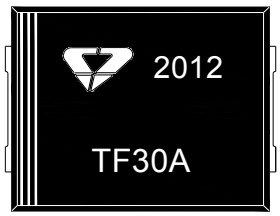
FEATURES:

- ✧ Halogen-free.
- ✧ Uni-directional.
- ✧ RoHS compliant.
- ✧ Low slope resistance.
- ✧ Very low clamping voltage.
- ✧ Sharp breakdown voltage.
- ✧ Glass passivated junction.
- ✧ Plastic package has underwriters laboratory flammability 94V-0.
- ✧ High temperature reflow soldering: 260℃/40s at terminals.
- ✧ Meets MSL level 1, per J-STD-020, LF maximum peak of 260℃.
- ✧ Terminal: solder plated, solderable per J-STD-002.
- ✧ IEC61000-4-2 (ESD) ±30kV (air), ±30kV (contact).

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

Parameter	Symbol	Value	Unit
Peak pulse current@8/20μs waveform	I_{PP}	3000	A
Operating junction temperature range	T_J	-55 to +150	℃
Storage temperature range	T_{STG}	-55 to +150	℃
Typical thermal resistance junction to lead	$R_{\theta JL}$	15	℃/W
Typical thermal resistance junction to ambient	$R_{\theta JA}$	75	℃/W

MARKING



TF30A: Device Marking Code
2012: the 12th week, 2020

ELECTRICAL CHARACTERISTICS (T_A=25℃)

Maximum V_F=1.6V at I_F=200mA

Part Number	Marking	V_R	V_{BR}@I_T		I_T	I_R@V_R	V_C@3000A 8/20μs	
Uni-Polar	Uni	V	Min(V)	Max(V)	mA	Max(μA)	Typ(V)	Max(V)
SMTF30A	TF30A	30	33	37	10	5	50	55

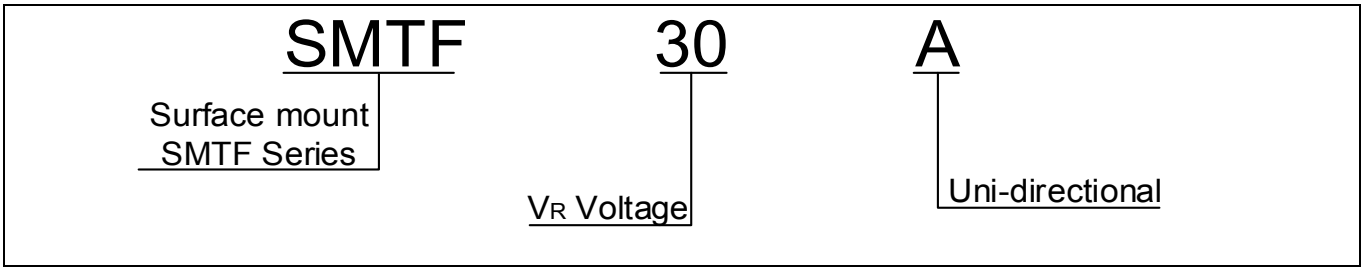
V_R: Stand-off voltage -- Maximum voltage that can be applied

V_{BR}: Breakdown voltage

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

I_R: Reverse leakage current

ORDERING INFORMATION



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

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

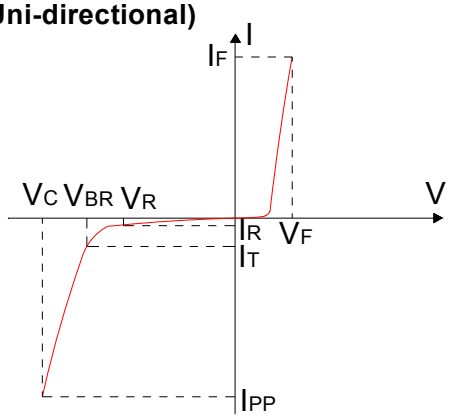


FIG.2: Typical V_{BR} vs. junction temperature

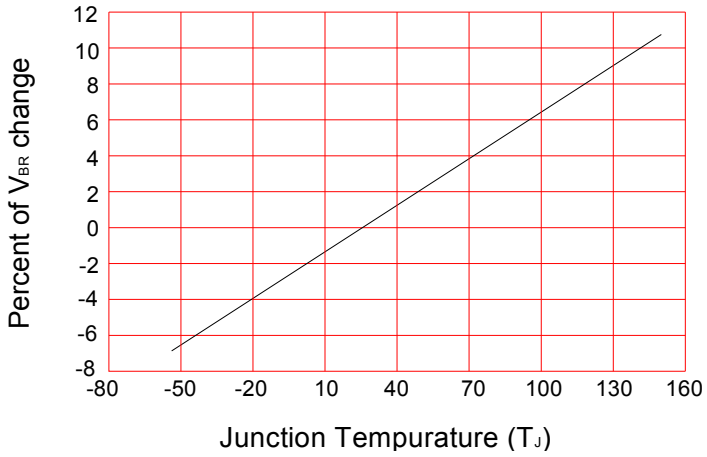


FIG.3: Pulse waveform

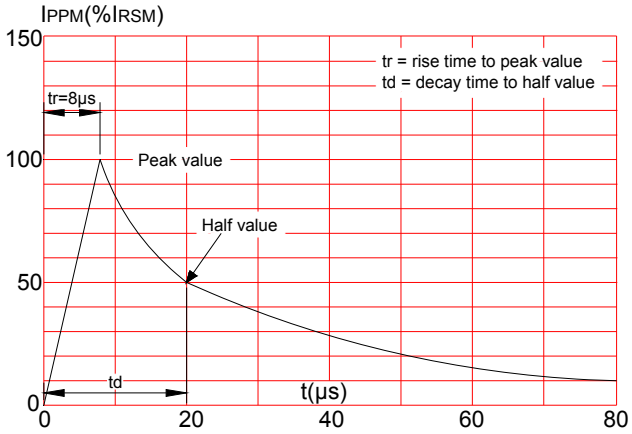


FIG.4: Pulse waveform

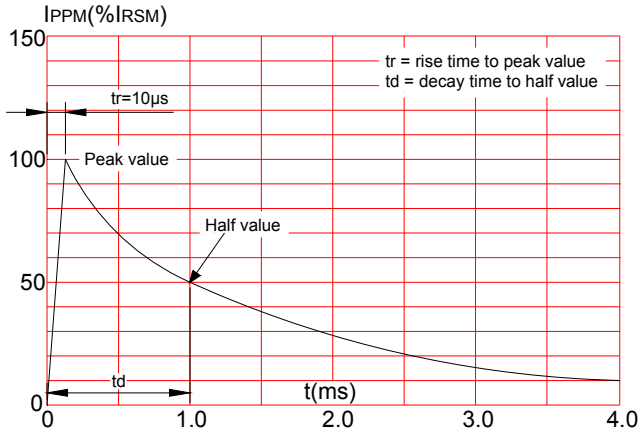


FIG.5: Pulse derating curve(8/20μs)

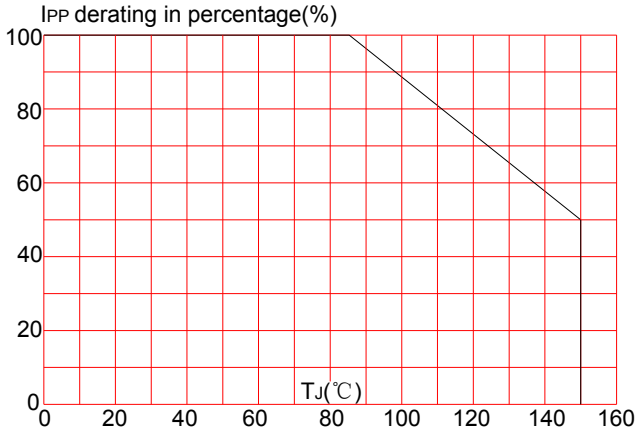
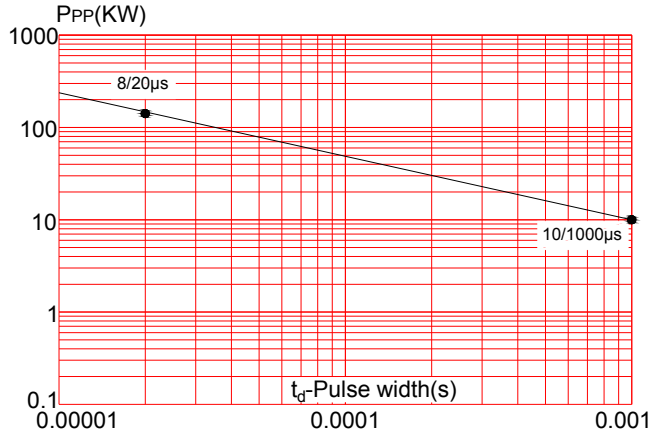
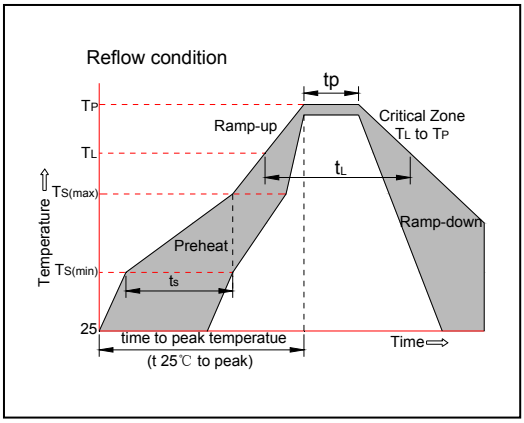


FIG.6: Typical peak pulse power rating curve

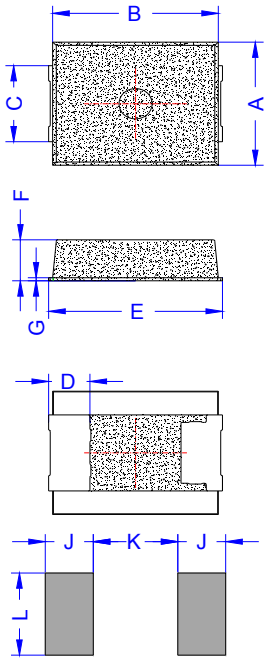


SOLDERING PARAMETERS

Reflow Condition		Pb-Free assembly (see figure at right)
Pre Heat	-Temperature Min ($T_{s(min)}$)	+150℃
	-Temperature Max($T_{s(max)}$)	+200℃
	-Time (Min to Max) (ts)	60-180 secs.
Average ramp up rate (Liquidus Temp (T_L)to peak)		3℃/sec. Max
$T_{s(max)}$ to T_L - Ramp-up Rate		3℃/sec. Max
Reflow	-Temperature(T_L)(Liquidus)	+217℃
	-Temperature(t_L)	60-150 secs.
Peak Temp (T_p)		+260(+0/-5)℃
Time within 5℃of actual Peak Temp (t_p)		20-40secs.
Ramp-down Rate		6℃/sec. Max
Time 25℃ to Peak Temp (T_P)		8 min. Max
Do not exceed		+260℃



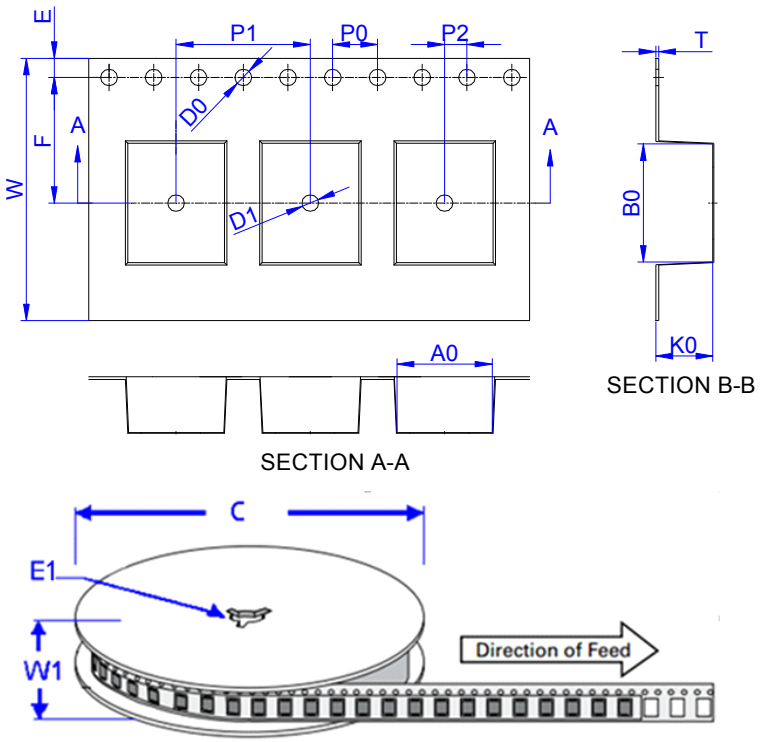
PACKAGE MECHANICAL DATA



SMTF

Ref.	Dimensions			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	7.80	8.40	0.307	0.331
B	9.70	10.30	0.382	0.406
C	4.8	5.2	0.189	0.205
D	2.0		0.079	
E	10.30	10.70	0.406	0.421
F	2.60	2.80	0.102	0.110
G	0.12	0.28	0.005	0.011
J	2.80		0.110	
K		5.30		0.209
L	5.40		0.213	

TAPE AND REEL SPECIFICATION-SMTF



Ref.	Dimensions	
	Millimeters	Inches
A0	8.50±0.10	0.335±0.004
B0	10.80±0.10	0.425±0.004
C	330.0	13.0
D0	1.50±0.10	0.059±0.004
D1	1.50±0.10	0.059±0.004
E	1.75±0.10	0.069±0.004
E1	13.3±0.3	0.524±0.012
F	11.50±0.10	0.453±0.004
K0	5.10±0.10	0.201±0.004
P0	4.00±0.10	0.157±0.004
P1	12.00±0.10	0.472±0.004
P2	2.00±0.10	0.079±0.004
T	0.30±0.05	0.012±0.002
W	24.00±0.30	0.945±0.012
W1	28.5±2.0	1.122±0.079

PART No.	PACKAGE TYPE	REEL (PCS)	PER CARTON (PCS)	DESCRIPTION
SMTF30A	SMTF	1,500	12,000	13 inch reel pack