

Surface Mount Transient Voltage Suppressors

UNS3K Series

Description

UNS3K series TVS is designed for DC power supply equipment in outdoor exposure environment. It is used to replace the traditional PTC, GDT and TVS combination solution, which is widely used in GPS module of the tower base station. etc

Working Voltage: 5.0 to 6.0 V

Features

- ◆ Planar junction
- ◆ Excellent clamping capability
- ◆ Repetitive rate (duty cycle): 0.01 %
- ◆ Low profile package and low inductance
- ◆ 3000A Peak Pulse power capability at 8/20us waveform
- ◆ Fast response time: typically less than 1.0ps from 0V to V_{BR} min
- ◆ High temperature soldering: 260°C/10s at terminals.
- ◆ For surface mounted application in order to optimize board space

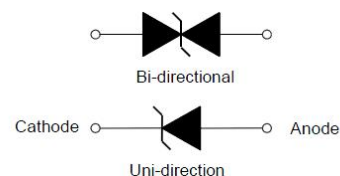
Uni-directional



Bi-directional



Functional Diagram



Applications

TVS devices are ideal for the protection of I/O interfaces, V_{CC} bus and other vulnerable circuits used in Telecom, Computer, Industrial and Consumer electronic applications.

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

Parameter	Symbol	Value	Units
Operating junction temperature range	T_J	- 55 to +125	$^\circ\text{C}$
Power Dissipation on Infinite Heat Sink at $T_L = 75^\circ\text{C}$	P_D	8.0	W
Peak pulse current with a 8/20us waveform	I_{PP}	3000	A
Storage temperature range	T_{STG}	- 55 to +150	$^\circ\text{C}$
Maximum Instantaneous Forward Voltage at 80A for Unidirectional	V_F	5.0	V

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Electrical Characteristics (@ 25°C Unless Otherwise Specified)

Part Number		Marking		Reverse Stand-Off Voltage $V_{RWM}(V)$	Breakdown Voltage V_{BR} (V) @ I_T		Test Current I_T (mA)	Maximum Clamping Voltage V_C @ I_{PP} (V)	Maximum Peak Pulse Current I_{PP} (A)	Maximum Reverse Leakage I_R @ V_{RWM} (μA)
Uni	Bi	Uni	Bi		MIN	MAX				
UNS3K5.0A	UNS3K5.0CA	3K5A	3K5C	5.0	6.40	7.10	10	20	3000	800
UNS3K6.0A	UNS3K6.0CA	KAF	KCF	6.0	6.50	7.40	10	22	3000	800

NOTE1: Surge waveform: 8/20 μs

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

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

Figure 1 - Pulse Waveform

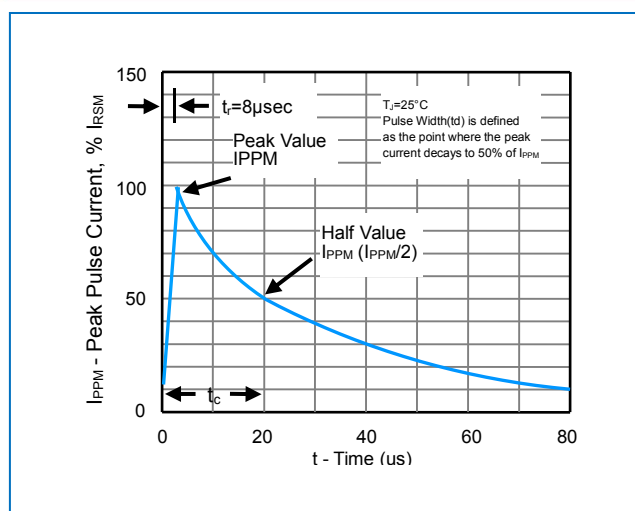
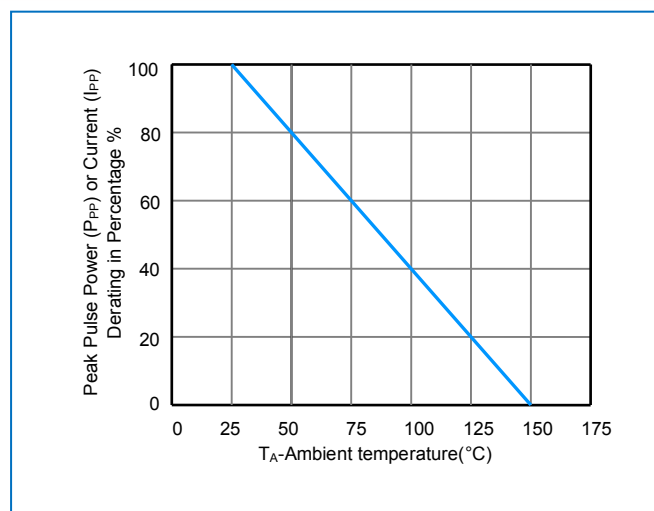
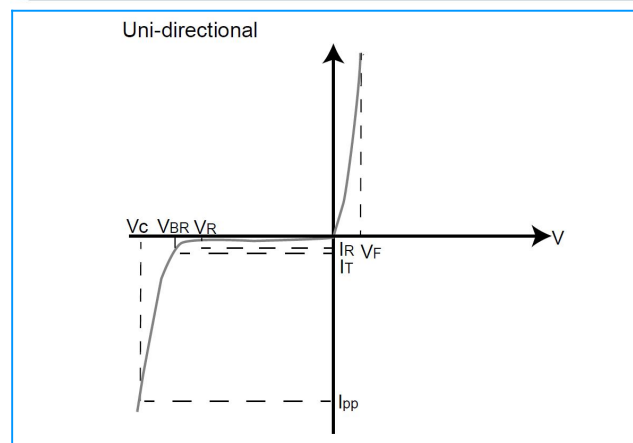
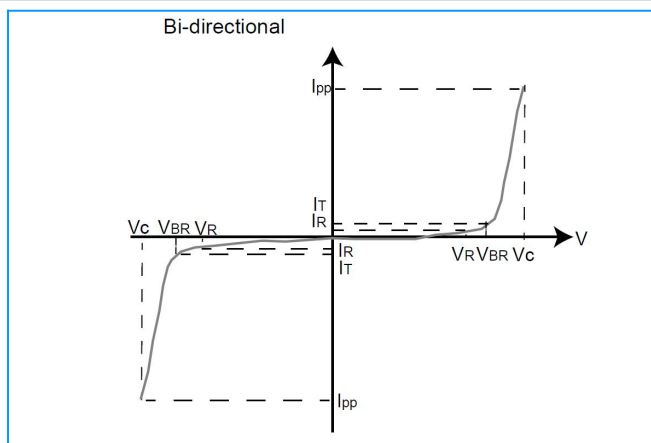


Figure 2 - Pulse Derating Curve



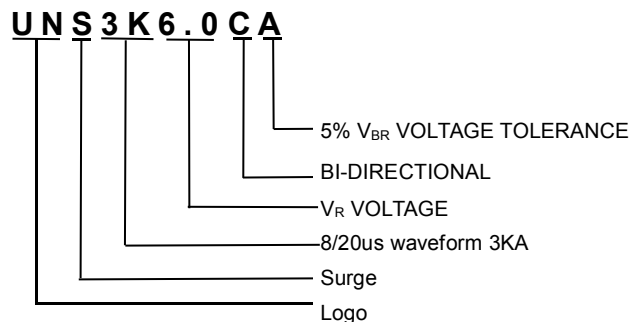
I-V Curve Characteristics



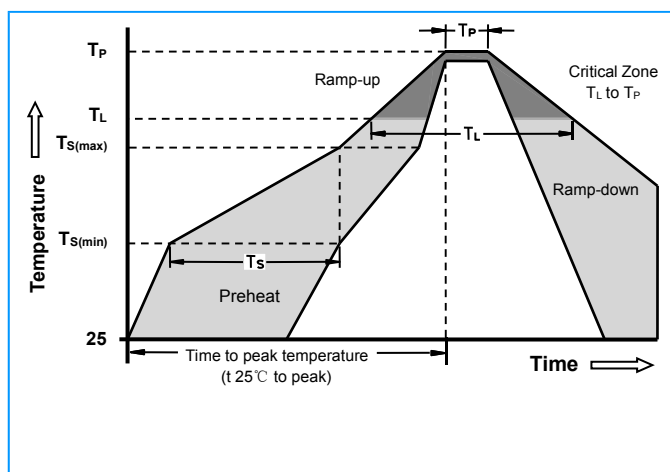
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Part Numbering



Soldering Parameters

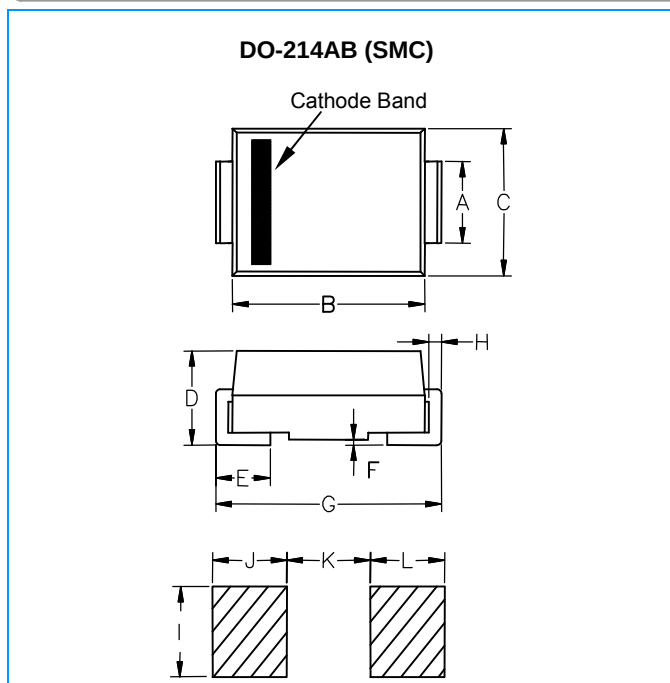


Reflow Condition		Lead-free assembly
Pre Heat	-Temperature Min ($T_{s(min)}$)	150°C
	-Temperature Max ($T_{s(max)}$)	200°C
	- Time (min to max) (t_s)	60 - 180 Seconds
Average ramp up rate (Liquidus Temp T_L to peak		3°C/second max
$T_{s(max)}$ to T_L - Ramp-up Rate		3°C/second max
Reflow	- Temperature (T_L) (Liquidus)	217°C
	- Time (min to max) (t_s)	60 - 150 Seconds
Peak Temperature (T_P)		260 +0/-5°C
Time within 5°C of actual peak Temperature (t_p)		30 Seconds
Ramp-down Rate		6°C/second max
Time 25°C to peak Temperature (T_P)		8 minutes Max
Do not exceed		260°C

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Dimensions



Dimensions	Inches		Millimeters	
	Min	Max	Min	Max
A	0.114	0.126	2.86	3.160
B	0.260	0.280	6.520	7.020
C	0.220	0.245	5.520	6.150
D	0.079	0.103	1.980	2.590
E	0.030	0.060	0.750	1.510
F	-	0.008	-	0.203
G	0.305	0.320	7.640	8.020
H	0.006	0.012	0.152	0.305
I	0.129	-	3.300	-
J	0.094	-	2.400	-
K	-	0.165	-	4.200
L	0.094	-	2.400	-

Packaging

Part Number	Component Package	Quantity	TAPE & REEL
UNS3KXXXX	DO-214AB	3000	13inch