Surface Mount Transient Voltage Suppressors

QXS1K Series

Description

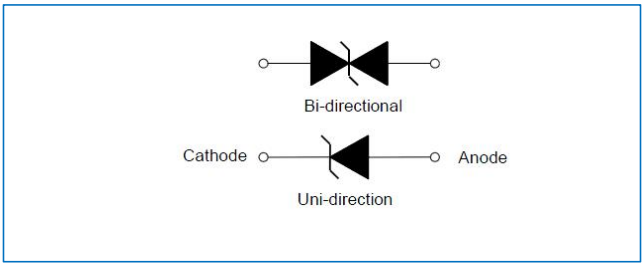
QXS1K series TVS is designed for DC power supply equipment in outdoor exposure environment.It is used to replace the traditional PTC, GDT and TVS combination solution, which is widely used to DC48V、AC24V port.etc

Working Voltage: 48 V、58V

Features

- Glass passivated junction
- Excellent clamping capability
- Repetitive rate (duty cycle):0.01 %
- Low profile package and low inductance
- 1000A 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℃/10s at terminals.
- For surface mounted application in order to optimize board space

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(Ta=25C unless otherwise noted)

Parameter	Symbol	Value	Units
Operating junction temperature range	**T_J**	-55 to +125	°C
Power Dissipation on Infinite Heat Sink at T_L=75°C	**P_D**	8.0	W
Peak pulse current with a 8/20us waveform	**I_{PP}**	1000	A
Storage temperature range	**T_{STG}**	-55 to +150	°C

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Electrical Characteristics(@25C 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				
QXS1K48A	QXS1K48CA	1K48A	1K48CA	48	53.30	58.90	1	82	1000	1
QXS1K58A	QXS1K58CA	1K58A	1K58CA	58	60.00	72.00	1	90	1000	1

NOTE1: Surge waveform: 8/20 μ s

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 Ipp

I_R：Reverse Leakage Current

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

Figure 1-Pulse Waveform

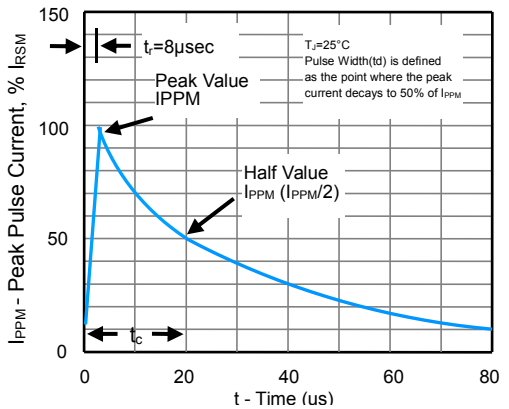
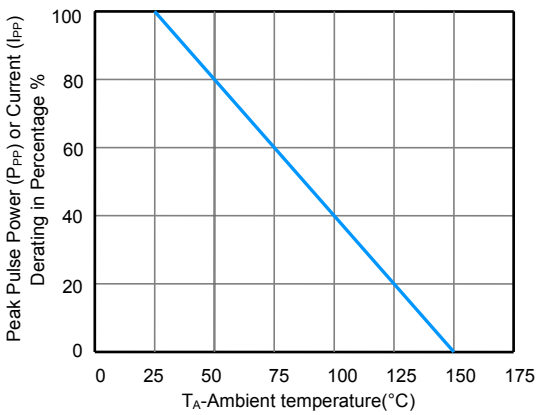
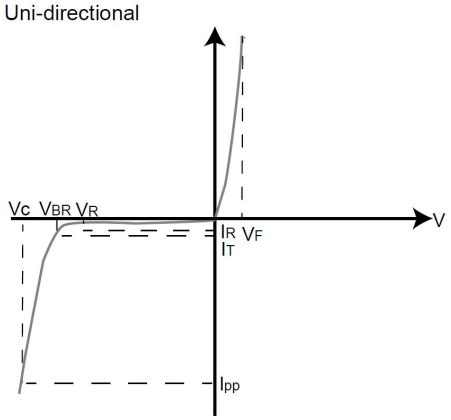


Figure 2-Pulse Derating Curve

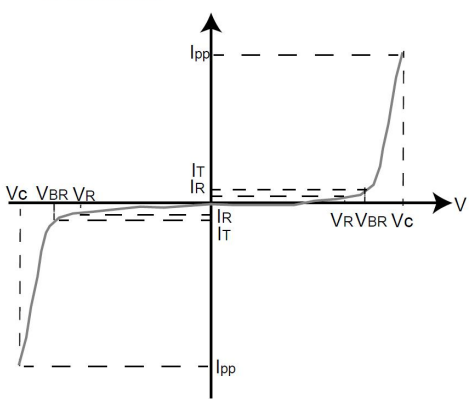


I-V Curve Characteristics

Uni-directional



Bi-directional



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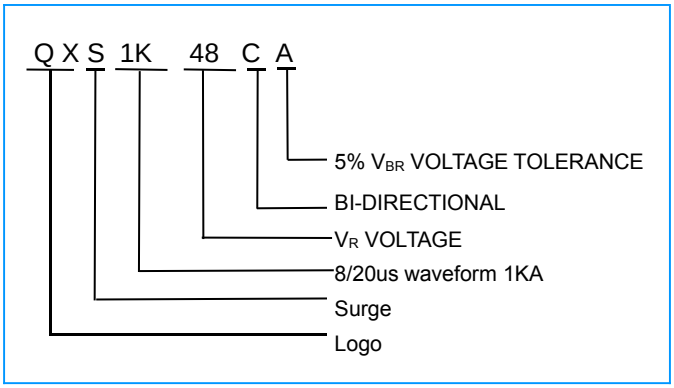
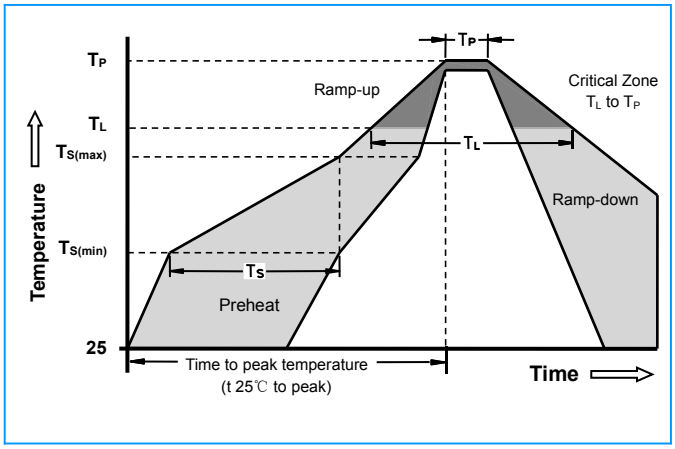


Soldering Parameters



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 TL - 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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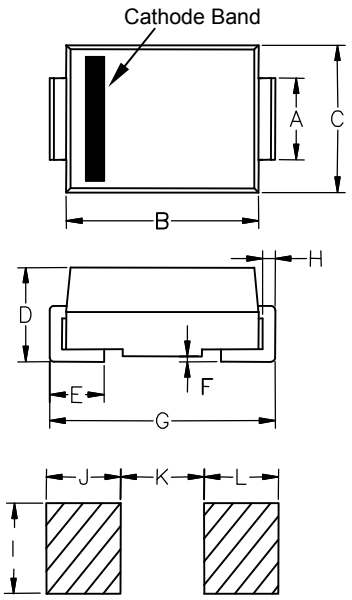
Dimensions

DO-214AB (SMC)



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
QXS1KXXXX	DO-214AB	3000	13inch