

DESCRIPTION:

The JRB-T series of high current uni/bi-directional transient suppressors are designed for A.C. line protection and high power DC bus clamping applications. These devices offer uni/bi-directional port protection from 15 volts to 43 volts. They provide a clamping voltage lower than the avalanche voltage. Therefore, any voltage rise due to increased current conduction is contained to a minimum, providing the best possible protection level. They can also be connected in series and/or parallel to create very high capacity protection solutions.



R-6/P-600



Bi-directional



Uni-direction

Symbol

FEATURES:

- ✧ Low incremental surge resistance.
- ✧ Excellent clamping capability.
- ✧ JEDEC R-6/P-600 molded plastic.
- ✧ Color band denoted cathode except bidirectional.
- ✧ High temperature wave soldering: 265°C/10s at terminals.
- ✧ Glass passivated chip junction in R-6/P-600 package.
- ✧ 6600W peak pulse power capability at 10×1000µs waveform.
- ✧ Fast response time: typically less than 1.0ps from 0V to V_{BR} min.
- ✧ AEC-Q101 qualified.

IEC COMPATIBILITY

- ✧ ISO16750-2 P5A 12V system (DC14V 87V/1Ω/400ms).
- ✧ ISO16750-2 P5A 24V system (DC28V 174V/4Ω/350ms).

ABSOLUTE MAXIMUM RATINGS ($T_A=25^\circ\text{C}$, RH=45%-75%, unless otherwise noted)

Parameter	Symbol	Value	Unit
Peak pulse power dissipation on 10/1000µs waveform	P_{PP}	6600	W
Maximum instantaneous forward voltage at 100A for unidirectional only	V_F	3.5	V
Steady state power dissipation at $T_L=75^\circ\text{C}$	$P_{M(AV)}$	8.0	W

ABSOLUTE MAXIMUM RATINGS ($T_A=25^{\circ}\text{C}$, RH=45%-75%, unless otherwise noted, continued)

Operating junction and storage temperature range	T_{STG}, T_J	-55 to +150	$^{\circ}\text{C}$
Peak forward surge current, 8.3ms single half sine-wave	I_{FSM}	600	A
Typical thermal resistance junction to lead	$R_{\theta\text{JL}}$	8.0	$^{\circ}\text{C}/\text{W}$
Typical thermal resistance junction to ambient	$R_{\theta\text{JA}}$	40	$^{\circ}\text{C}/\text{W}$

ELECTRICAL CHARACTERISTICS ($T_A=25^{\circ}\text{C}$)

Part Number		V_R	$I_R@V_R$	$V_{\text{BR}}@I_T$		I_T	$V_C@I_{\text{PP}}$	$I_{\text{PP}}^{\text{①}}$
Uni-Polar	Bi-Polar	V	μA	min(V)	max(V)	mA	max(V)	A
JRB-T15A	JRB-T15CA	15	5	16.7	18.5	5	24.4	270.5
JRB-T16A	JRB-T16CA	16	5	17.8	19.7	5	26.0	253.8
JRB-T18A	JRB-T18CA	18	5	20.0	22.1	5	29.2	226.0
JRB-T20A	JRB-T20CA	20	5	22.2	24.5	5	32.4	203.7
JRB-T22A	JRB-T22CA	22	5	24.4	26.9	5	35.5	186.0
JRB-T24A	JRB-T24CA	24	5	26.7	29.5	5	38.9	169.7
JRB-T26A	JRB-T26CA	26	5	28.9	31.9	5	42.1	156.8
JRB-T28A	JRB-T28CA	28	5	31.1	34.4	5	45.4	145.4
JRB-T30A	JRB-T30CA	30	5	33.3	36.8	5	48.4	136.4
JRB-T33A	JRB-T33CA	33	5	36.7	40.6	5	53.3	123.8
JRB-T36A	JRB-T36CA	36	5	40.0	44.2	5	58.1	113.6
JRB-T40A	JRB-T40CA	40	5	44.4	49.1	5	64.5	102.3
JRB-T43A	JRB-T43CA	43	5	47.8	52.8	5	69.4	95.1

① Surge waveform: 10/1000 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 V-I CHARACTERISTICS CURVES ($T_A=25^\circ\text{C}$, unless otherwise noted)

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

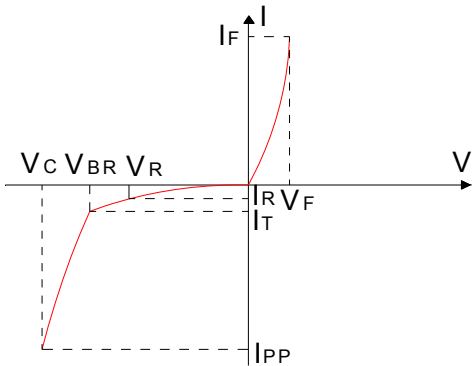


FIG.2:V- I curve characteristics (Bi-directional)

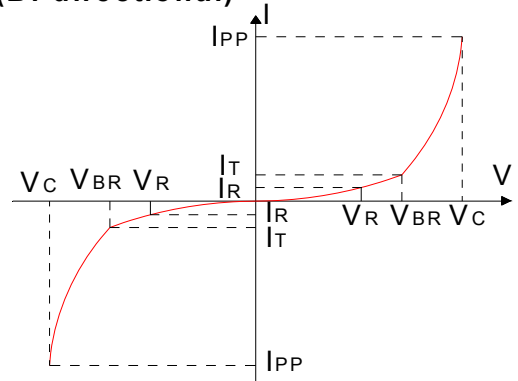


FIG.3: Pulse waveform

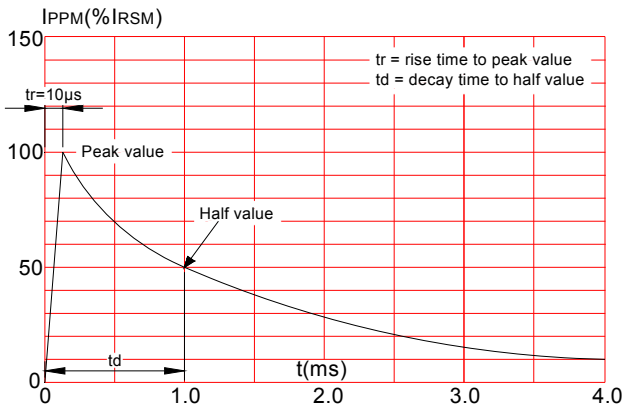
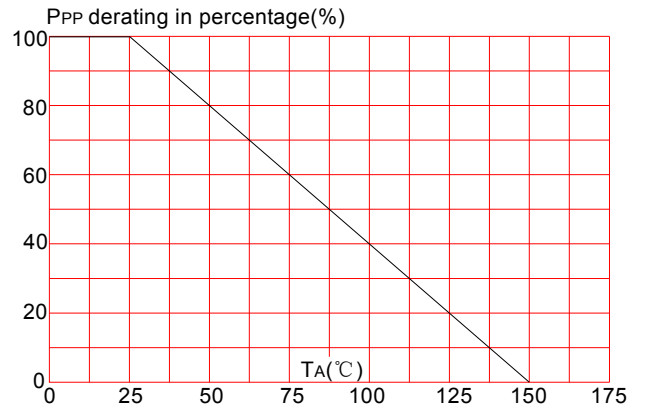
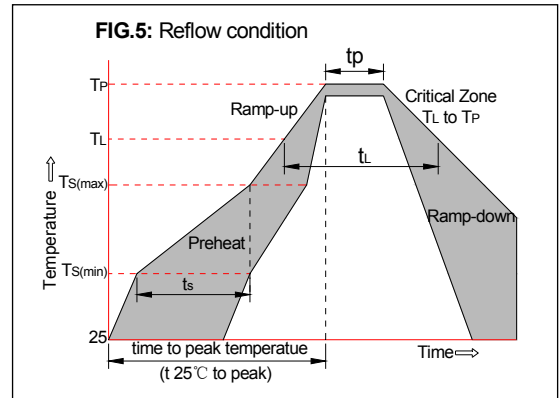


FIG.4: Pulse derating curve



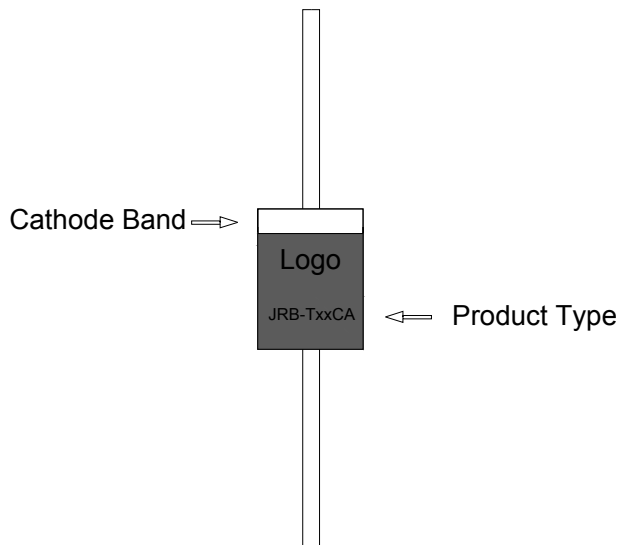
SOLDERING PARAMETERS

Reflow Condition		Pb-Free assembly (see FIG.5)
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



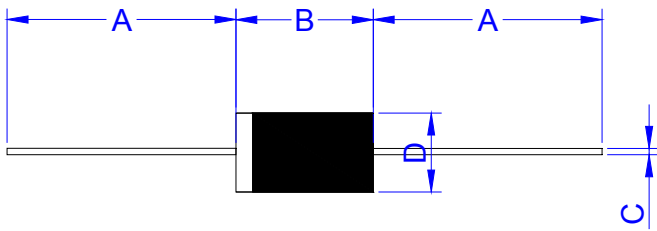
Flow/Wave Soldering(Solder Dipping)	
Peak temperature	265°C
Dipping time	10 sec.
Soldering	1 time

MARKING & ORDERING INFORMATION



JRB-T xx C A
 (1) (2) (3) (4)
 (1)Series:6600 watts series
 (2)Reverse Stand-off Voltage
 (3)Bi-directional
 (4)5% V_{BR} Voltage tolerance

PACKAGE MECHANICAL DATA



Ref.	Dimensions			
	Inches		Millimeters	
	Min.	Max.	Min.	Max.
A	1.000	-	25.40	-
B	0.339	0.370	8.60	9.40
C	0.047	0.055	1.20	1.40
D	0.339	0.358	8.60	9.10

Part Number	UNIT WEIGHT (g/PCS) typ.	Case Type	Quantity	Packing Option
JRB-TxxCA/A	2.76	R-6/P-600	300	Box