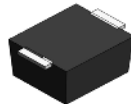


# 15BJ

## Automotive grade 1500 W Transient voltage suppressor



### Product features

- Automotive grade (AEC-Q101 qualified)
- Low profile SMD package
- Excellent clamping capability
- High reliability application
- 1500 W peak pulse power capability at 10/1000  $\mu$ s waveform
- Typical  $I_R$  less than 1  $\mu$ A above 11 V
- Fast response time: typically less than 1.0 ps from 0 V to  $V_{BR}$  minimum
- High temperature reflow soldering: +260 °C /40 s at terminal
- Plastic package meets UL 94 V-0 flammability rating
- Meets moisture sensitivity level (MSL) level 1
- Terminal: tin plated, solderable per J-STD-002
- For surface mounted applications in order to optimize board space
- UL 497B recognized.  
File No. : E198449 Guide QVGQ2

### Applications

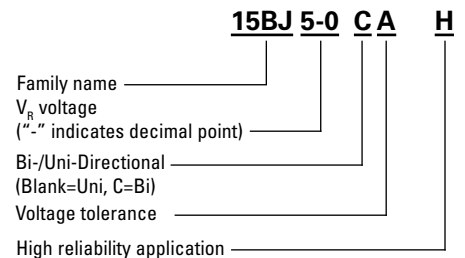
- Automotive chassis and safety systems
- Advanced driver assistance systems (ADAS)
- Communication and infotainment systems
- Network systems and body electronics
- Power Train controls
- xEV and battery systems

### Environmental compliance and general specifications

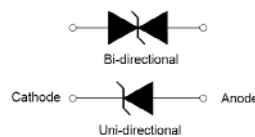
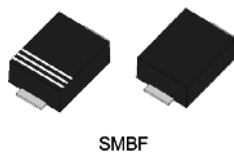
- AEC-Q101 qualified



### Ordering part number



### PIN configuration



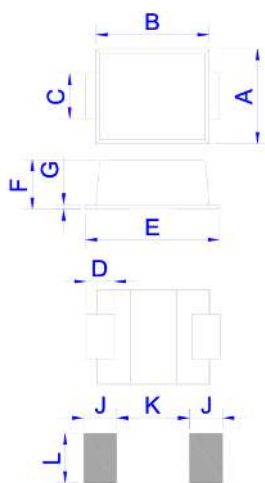
### Absolute maximum ratings

(+25 °C, RH=45%-75%, unless otherwise noted)

Parameter	Symbol	Value	Unit
Storage operating junction temperature range	$T_{STG}/T_J$	-55 to +150	°C
Steady state power dissipation at $T_L = +75$ °C	$P_{M(AV)}$	5.0	W
Peak pulse power dissipation on 10/1000 $\mu$ s waveform	$P_{PP}$	1500	W
Maximum instantaneous forward voltage at 100 A for unidirectional	$V_F$	5.0	V
Peak forward surge current, 8.3 ms single half sine wave <sup>1</sup>	$I_{FSM}$	200	A

1. Measured on 8.3 ms single half sine wave or equivalent square wave for unidirectional device only, duty cycle = 4 per minute maximum

### Mechanical parameters, pad layout- mm/inches



Dimension	Millimeters		Inches	
	Minimum	Maximum	Minimum	Maximum
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	

### Part marking

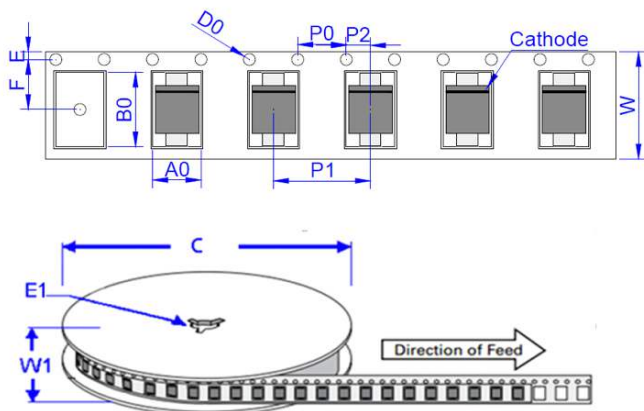


Cathode band (uni-polar only)  
Part marking:  
xxxx = Date code  
yyy- Refer to marking designator listed in Electrical characteristics table

### Packaging information- mm/inches

Drawing not to scale.

Supplied in tape and reel packaging, 3,000 parts per 13" diameter reel (EIA-481 compliant)



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	5.50 ± 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

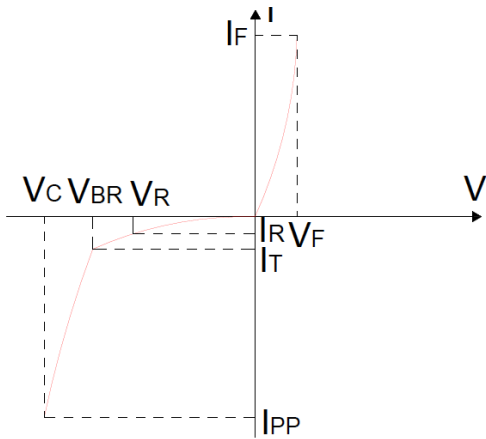
15BJ  
Automotive grade 1500 W Transient voltage suppressor

Electrical characteristics (+25 °C)

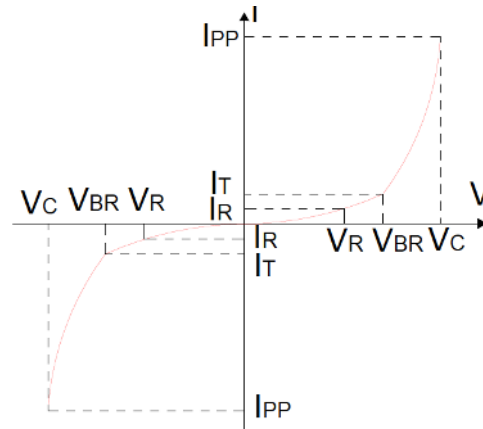
Part number		Marking		$V_R$	$I_R @ V_R$	$V_{BR} @ I_T$		$I_T$	$V_C @ I_{PP}$	$I_{PP}$
Uni-polar	Bi-polar	Uni	Bi	(V)	( $\mu$ A)	min (V)	max (V)	(mA)	max (V)	(A)
15BJ5-0AH	15BJ5-0CAH	GDE	BDE	5	300	6.4	7	10	9.2	163
15BJ6-0AH	15BJ6-0CAH	GDG	BDG	6	250	6.67	7.37	10	10.3	145.6
15BJ6-5AH	15BJ6-5CAH	GDK	BDK	6.5	150	7.22	7.98	10	11.2	134
15BJ7-0AH	15BJ7-0CAH	GDM	BDM	7	100	7.78	8.6	10	12	125
15BJ7-5AH	15BJ7-5CAH	GDP	BDP	7.5	50	8.33	9.21	1	12.9	116.3
15BJ8-0AH	15BJ8-0CAH	GDR	BDR	8	30	8.89	9.83	1	13.6	110.3
15BJ8-5AH	15BJ8-5CAH	GDT	BDT	8.5	20	9.44	10.4	1	14.4	104.2
15BJ9-0AH	15BJ9-0CAH	GDV	BDV	9	10	10	11.1	1	15.4	97.4
15BJ10AH	15BJ10CAH	GDX	BDX	10	5	11.1	12.3	1	17	88.2
15BJ11AH	15BJ11CAH	GDZ	BDZ	11	2	12.2	13.5	1	18.2	82.4
15BJ12AH	15BJ12CAH	GEE	BEE	12	1	13.3	14.7	1	19.9	75.4
15BJ13AH	15BJ13CAH	GEG	BEG	13	1	14.4	15.9	1	21.5	69.8
15BJ14AH	15BJ14CAH	GEK	BEK	14	1	15.6	17.2	1	23.2	64.7
15BJ15AH	15BJ15CAH	GEM	BEM	15	1	16.7	18.5	1	24.4	61.5
15BJ16AH	15BJ16CAH	GEP	BEP	16	1	17.8	19.7	1	26	57.7
15BJ17AH	15BJ17CAH	GER	BER	17	1	18.9	20.9	1	27.6	54.4
15BJ18AH	15BJ18CAH	GET	BET	18	1	20	22.1	1	29.2	51.4
15BJ20AH	15BJ20CAH	GEV	BEV	20	1	22.2	24.5	1	32.4	46.3
15BJ22AH	15BJ22CAH	GEX	BEX	22	1	24.4	26.9	1	35.5	42.3
15BJ24AH	15BJ24CAH	GEZ	BEZ	24	1	26.7	29.5	1	38.9	38.6
15BJ26AH	15BJ26CAH	GFE	BFE	26	1	28.9	31.9	1	42.1	35.6
15BJ28AH	15BJ28CAH	GFG	BFG	28	1	31.1	34.4	1	45.4	33.1
15BJ30AH	15BJ30CAH	GFK	BFK	30	1	33.3	36.8	1	48.4	31
15BJ33AH	15BJ33CAH	GFM	BFM	33	1	36.7	40.6	1	53.3	28.2
15BJ36AH	15BJ36CAH	GFP	BFP	36	1	40	44.2	1	58.1	25.8
15BJ40AH	15BJ40CAH	GFR	BFR	40	1	44.4	49.1	1	64.5	23.3
15BJ43AH	15BJ43CAH	GFT	BFT	43	1	47.8	52.8	1	69.4	21.6
15BJ45AH	15BJ45CAH	GFV	BFV	45	1	50	55.3	1	72.7	20.6
15BJ48AH	15BJ48CAH	GFX	BFX	48	1	53.3	58.9	1	77.4	19.4
15BJ51AH	15BJ51CAH	GFZ	BFZ	51	1	56.7	62.7	1	82.4	18.2
15BJ54AH	15BJ54CAH	GGE	BGE	54	1	60	66.3	1	87.1	17.2
15BJ58AH	15BJ58CAH	GGG	BGG	58	1	64.4	71.2	1	93.6	16.1
15BJ60AH	15BJ60CAH	GGK	BGK	60	1	66.7	73.7	1	96.8	15.5
15BJ64AH	15BJ64CAH	GGM	BGM	64	1	71.1	78.6	1	103	14.6
15BJ70AH	15BJ70CAH	GGP	BGP	70	1	77.8	86	1	113	13.3
15BJ75AH	15BJ75CAH	GGR	BGR	75	1	83.3	92.1	1	121	12.4
15BJ78AH	15BJ78CAH	GGT	BGT	78	1	86.7	95.8	1	126	11.9
15BJ85AH	15BJ85CAH	GGV	BGV	85	1	94.4	104	1	137	11
15BJ90AH	15BJ90CAH	GGX	BGX	90	1	100	111	1	146	10.3
15BJ100AH	15BJ100CAH	GGZ	BGZ	100	1	111	123	1	162	9.3
15BJ110AH	15BJ110CAH	GHE	BHE	110	1	122	135	1	177	8.5
15BJ120AH	15BJ120CAH	GHG	BHG	120	1	133	147	1	193	7.8
15BJ130AH	15BJ130CAH	GHK	BHK	130	1	144	159	1	209	7.2
15BJ150AH	15BJ150CAH	GHM	BHM	150	1	167	185	1	243	6.2
15BJ160AH	15BJ160CAH	GHP	BHP	160	1	178	197	1	259	5.8
15BJ170AH	15BJ170CAH	GHR	BHR	170	1	189	209	1	275	5.5
15BJ180AH	15BJ180CAH	GHT	BHT	180	1	201	222	1	292	5.2
15BJ190AH	15BJ190CAH	GHU	BHU	190	1	211	234	1	307	4.9
15BJ200AH	15BJ200CAH	GHV	BHV	200	1	224	247	1	324	4.7

**Ratings and V-I characteristic curves** (+25 °C unless otherwise noted)

**V- I curve characteristics (Uni-directional)**



**V- I curve characteristics (Bi-directional)**



Surge waveform: 10/1000  $\mu$ s

V<sub>R</sub>: Stand-off voltage – Maximum voltage that can be applied

V<sub>BR</sub>: Breakdown voltage

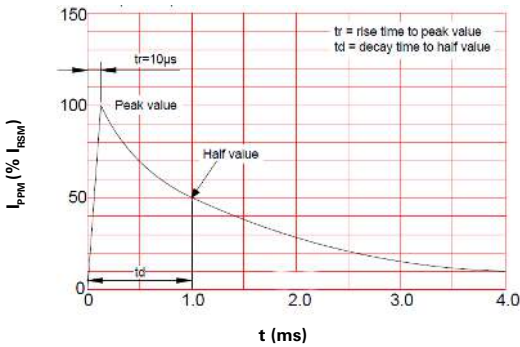
V<sub>C</sub>: Clamping voltage – Peak voltage measured across the suppressor at a specified I<sub>PP</sub>

I<sub>R</sub>: Reverse leakage current

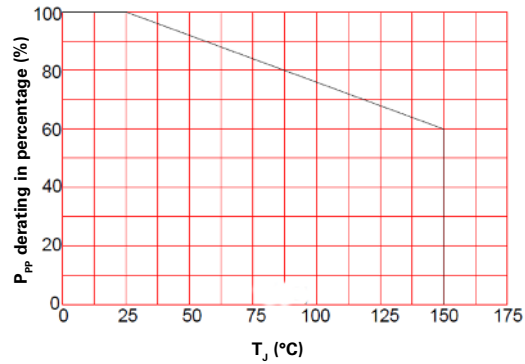
I<sub>T</sub>: Test current

V<sub>F</sub>: Forward voltage drop for Uni-directional

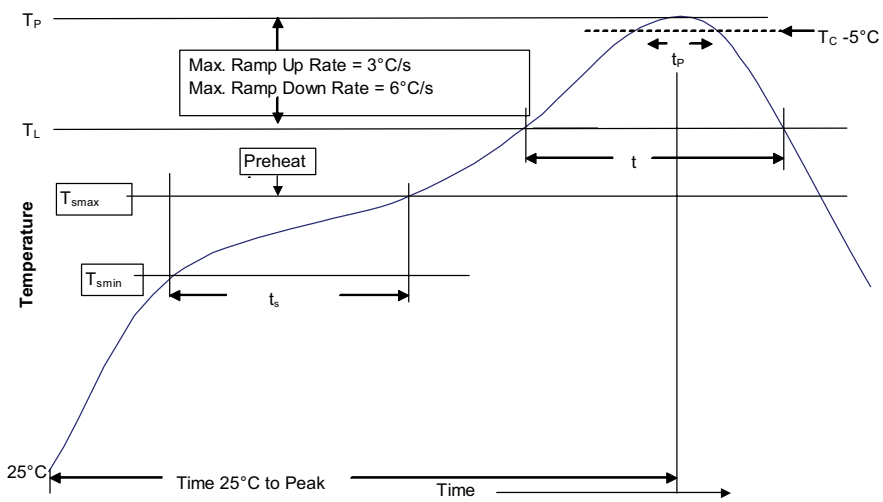
**Pulse waveform**



**Pulse derating curve**



**Solder reflow profile**



**Table 1 - Standard SnPb solder (T<sub>C</sub>)**

Package thickness	Volume mm <sup>3</sup> <350	Volume mm <sup>3</sup> ≥350
<2.5 mm	235 °C	220 °C
≥2.5 mm	220 °C	220 °C

**Table 2 - Lead (Pb) free solder (T<sub>C</sub>)**

Package thickness	Volume mm <sup>3</sup> <350	Volume mm <sup>3</sup> 350 - 2000	Volume mm <sup>3</sup> >2000
<1.6 mm	260 °C	260 °C	260 °C
1.6 – 2.5 mm	260 °C	250 °C	245 °C
>2.5 mm	250 °C	245 °C	245 °C

**Reference J-STD-020**

Profile feature	Standard SnPb solder	Lead (Pb) free solder
Preheat and soak		
• Temperature min. (T <sub>smin</sub> )	100 °C	150 °C
• Temperature max. (T <sub>smax</sub> )	150 °C	200 °C
• Time (T <sub>smin</sub> to T <sub>smax</sub> ) (t <sub>s</sub> )	60-120 seconds	60 - 180 seconds
Ramp up rate T <sub>L</sub> to T <sub>p</sub>	3 °C/ second max.	3 °C/ second max.
Liquidous temperature (T <sub>L</sub> )	183 °C	217 °C
Time (t <sub>L</sub> ) maintained above T <sub>L</sub>	60-150 seconds	60-150 seconds
Peak package body temperature (T <sub>p</sub> )*	Table 1	Table 2 (+0, -5 °C)
Time (t <sub>p</sub> )* within 5 °C of the specified classification temperature (T <sub>C</sub> )	20 seconds*	40 seconds*
Ramp-down rate (T <sub>p</sub> to T <sub>L</sub> )	6 °C/ second max.	6 °C/ second max.
Time 25 °C to peak temperature	6 minutes max.	8 minutes max.

\* Tolerance for peak profile temperature (T<sub>p</sub>) is defined as a supplier minimum and a user maximum.

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