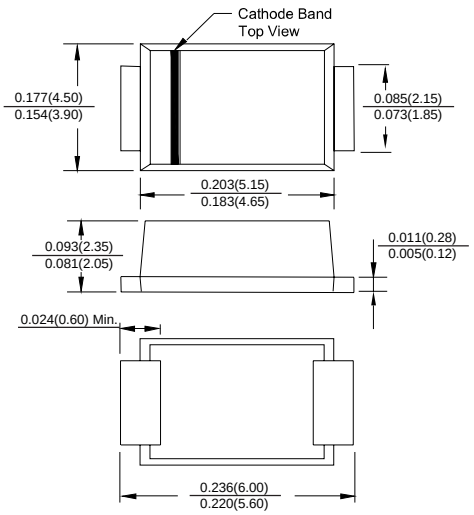
SMBF15J-Q1 Series

1500W Transient Voltage Suppressors - 5V-440V

Features

- Low profile surface mounted application in order to optimize board space.
- Excellent clamping capability.
- Low incremental surge resistance.
- Fast response time from 0V to VBR, typically less than 1 ps for uni-directional & 5 ns for bi-directional types.
- Glass passivated chip junction.
- Lead-free parts meet RoHS requirments.
- Compliant to Halogen-free
- Suffix "-Q1" for AEC-Q101

Package outline



Dimensions in inches and (millimeters)

Mechanical data

- Epoxy : UL94-V0 rated flame retardant
- Case : Molded plastic, SMBF
- Lead : Axial leads, solderable per MIL-STD-202, Method 208 guaranteed
- Polarity: Color band denotes cathode end
- Mounting Position : Any

Maximum ratings (AT T_A=25°C unless otherwise noted)

PARAMETER	CONDITIONS	Symbol	VALUE	UNIT
Peak power dissipation	with a 10/1000 us waveform	P_{PPM}	1500	W
Peak pulse current	with a 10/1000 us waveform	I_{PPM}	See table 1	A
Steady state power dissipation	at T_L=75°C	$P_{M(AV)}$	5.0	W
Peak forward surge current	8.3ms single half sine-wave for unidirectional only	I_{FSM}	200	A
Operating junction temperature range		T_J	-55~+150	°C
Storage temperature range		T_{STG}	-55~+150	°C

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Electrical characteristics (at T_A=25°C unless otherwise noted)

Table 1

Part No.	Reverse Stand-off Voltage	Breakdown Voltage @I_T		Test Current	Maximum Clamping Voltage @I_{PP}		Maximum Reverse Leakage Current	Marking Code	
	V_{RWM}	$V_{BR\ Min}$	$V_{BR\ Max}$	I_T	V_C@I_{PP}		I_R@V_{RWM}		
	Volts	Volts	Volts	mA	Volts	I_{PP}(A)	μA	UNI	BI
SMBF15J5.0(C)A-Q1	5.0	6.40	7.00	10	9.2	163.0	300	GDE	BDE
SMBF15J6.0(C)A-Q1	6.0	6.67	7.37	10	10.3	145.6	250	GDG	BDG
SMBF15J6.5(C)A-Q1	6.5	7.22	7.98	10	11.2	134.0	150	GDK	BDK
SMBF15J7.0(C)A-Q1	7.0	7.78	8.60	10	12.0	125.0	100	GDM	BDM
SMBF15J7.5(C)A-Q1	7.5	8.33	9.21	1.0	12.9	116.3	50	GDP	BDP
SMBF15J8.0(C)A-Q1	8.0	8.89	9.83	1.0	13.6	110.3	30	GDR	BDR
SMBF15J8.5(C)A-Q1	8.5	9.44	10.40	1.0	14.4	104.2	20	GDT	BDT
SMBF15J9.0(C)A-Q1	9.0	10.00	11.10	1.0	15.4	97.4	10	GDV	BDV
SMBF15J10(C)A-Q1	10	11.10	12.30	1.0	17.0	88.2	5	GDX	BDX
SMBF15J11(C)A-Q1	11	12.20	13.50	1.0	18.2	82.4	2	GDZ	BDZ
SMBF15J12(C)A-Q1	12	13.30	14.70	1.0	19.9	75.4	1	GEE	BEE
SMBF15J13(C)A-Q1	13	14.40	15.90	1.0	21.5	69.8	1	GEG	BEG
SMBF15J14(C)A-Q1	14	15.60	17.20	1.0	23.2	64.7	1	GEK	BEK
SMBF15J15(C)A-Q1	15	16.70	18.50	1.0	24.4	61.5	1	GEM	BEM
SMBF15J16(C)A-Q1	16	17.80	19.70	1.0	26.0	57.7	1	GEP	BEP
SMBF15J17(C)A-Q1	17	18.90	20.90	1.0	27.6	54.4	1	GER	BER
SMBF15J18(C)A-Q1	18	20.00	22.10	1.0	29.2	51.4	1	GET	BET
SMBF15J20(C)A-Q1	20	22.20	24.50	1.0	32.4	46.3	1	GEV	BEV
SMBF15J22(C)A-Q1	22	24.40	26.90	1.0	35.5	42.3	1	GEX	BEX
SMBF15J24(C)A-Q1	24	26.70	29.50	1.0	38.9	38.6	1	GEZ	BEZ
SMBF15J26(C)A-Q1	26	28.90	31.90	1.0	42.1	35.6	1	GFE	BFE
SMBF15J28(C)A-Q1	28	31.10	34.40	1.0	45.4	33.1	1	GFG	BFG
SMBF15J30(C)A-Q1	30	33.30	36.80	1.0	48.4	31.0	1	GFK	BFK
SMBF15J33(C)A-Q1	33	33.70	40.60	1.0	53.3	28.2	1	GFM	BFM
SMBF15J36(C)A-Q1	36	40.00	44.20	1.0	58.1	25.8	1	GFP	BFP
SMBF15J40(C)A-Q1	40	44.40	49.10	1.0	64.5	23.3	1	GFR	BFR
SMBF15J43(C)A-Q1	43	47.80	52.80	1.0	69.4	21.6	1	GFT	BFT
SMBF15J45(C)A-Q1	45	50.00	55.30	1.0	72.7	20.6	1	GFV	BFV
SMBF15J48(C)A-Q1	48	55.30	58.90	1.0	77.4	19.4	1	GFX	BFX
SMBF15J51(C)A-Q1	51	56.70	62.70	1.0	82.4	18.2	1	GFZ	BFZ
SMBF15J54(C)A-Q1	54	60.00	66.30	1.0	87.1	17.2	1	GGE	BGE
SMBF15J58(C)A-Q1	58	64.40	71.20	1.0	93.6	16.1	1	GGG	BGG
SMBF15J60(C)A-Q1	60	66.70	73.70	1.0	96.8	15.5	1	GGK	BGK
SMBF15J64(C)A-Q1	64	71.10	78.60	1.0	103.0	14.6	1	GGM	BGM
SMBF15J70(C)A-Q1	70	77.80	86.00	1.0	113.0	13.3	1	GGP	BGP
SMBF15J75(C)A-Q1	75	83.30	92.10	1.0	121.0	12.4	1	GGR	BGR
SMBF15J78(C)A-Q1	78	86.70	95.80	1.0	126.0	11.9	1	GGT	BGT

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Electrical characteristics (at T_A=25°C unless otherwise noted)

Table 1

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	V_{RWM}	$V_{BR\ Min}$	$V_{BR\ Max}$	I_T	V_C@I_{PP}		I_R@V_{RWM}		
	Volts	Volts	Volts	mA	Volts	I_{PP}(A)	μA	UNI	BI
SMBF15J85(C)A-Q1	85	94.40	104.0	1.0	137.0	11.0	1	GGV	BGV
SMBF15J90(C)A-Q1	90	100.0	111.0	1.0	146.0	10.3	1	GGX	BGX
SMBF15J100(C)A-Q1	100	111.0	123.0	1.0	162.0	9.3	1	GGZ	BGZ
SMBF15J110(C)A-Q1	110	122.0	135.0	1.0	177.0	8.5	1	GHE	BHE
SMBF15J120(C)A-Q1	120	133.0	147.0	1.0	193.0	7.8	1	GHG	BHG
SMBF15J130(C)A-Q1	130	144.0	159.0	1.0	209.0	7.2	1	GHK	BHK
SMBF15J150(C)A-Q1	150	167.0	185.0	1.0	243.0	6.2	1	GHM	BHM
SMBF15J160(C)A-Q1	160	178.0	197.0	1.0	259.0	5.8	1	GHP	BHP
SMBF15J170(C)A-Q1	170	189.0	209.0	1.0	275.0	5.5	1	GHR	BHR
SMBF15J180(C)A-Q1	180	201.0	222.0	1.0	292.0	5.2	1	GHT	BHT
SMBF15J190(C)A-Q1	190	211.0	234.0	1.0	307.0	4.9	1	GHU	BHU
SMBF15J200(C)A-Q1	200	224.0	247.0	1.0	324.0	4.7	1	GHV	BHV
SMBF15J210(C)A-Q1	210	233.0	258.0	1.0	337.0	4.5	1	GHX	BHX
SMBF15J220(C)A-Q1	220	246.0	272.0	1.0	356.0	4.2	1	GHZ	BHZ
SMBF15J250(C)A-Q1	250	279.0	309.0	1.0	405.0	3.7	1	GIE	BIE
SMBF15J300(C)A-Q1	300	335.0	371.0	1.0	486.0	3.1	1	GIG	BIG
SMBF15J350(C)A-Q1	350	391.0	432.0	1.0	567.0	2.6	1	GIK	BIK
SMBF15J400(C)A-Q1	400	447.0	494.0	1.0	648.0	2.3	1	GIM	BIM
SMBF15J440(C)A-Q1	440	492.0	543.0	1.0	713.0	2.1	1	GIP	BIP

Rating and characteristic curves

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

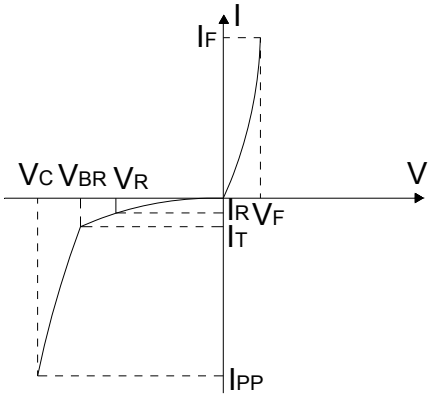


FIG.2:V- I curve characteristics (Bi-directional)

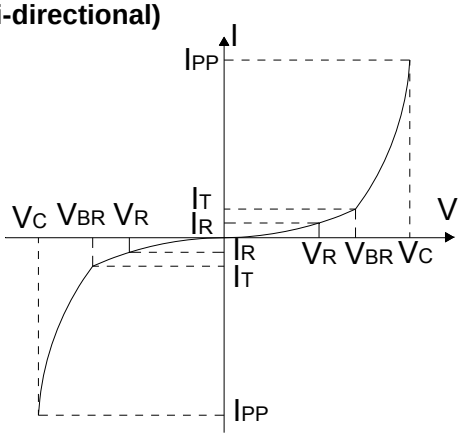


FIG.3: Pulse waveform

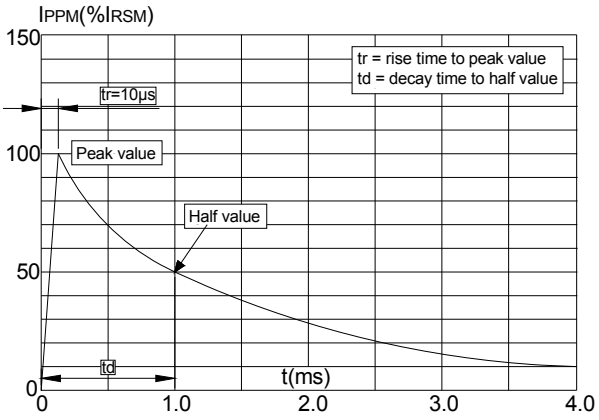
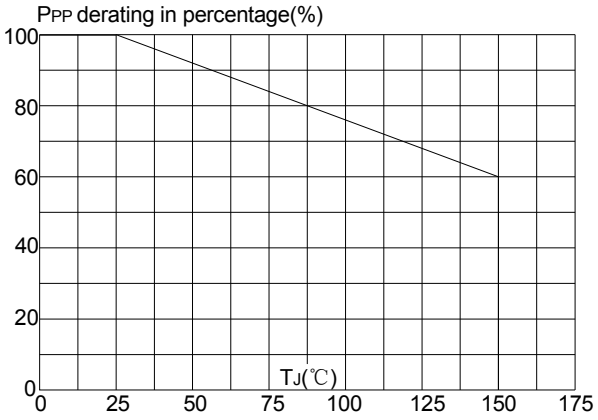


FIG.4: Pulse derating curve



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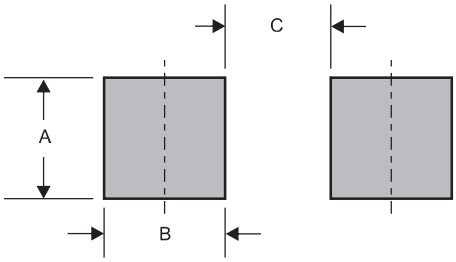
Pinning information

Pin	Simplified outline	Symbol
Uni-Directional Pin1 cathode Pin2 anode		
Bi-Directional		

Suggested solder pad layout



Dimensions in inches and (millimeters)

PACKAGE	A	B	C
SMBF	0.091(2.30)	0.079(2.00)	0.126(3.20)