BRSMF5.0(C)AQ~BRSMF440(C)AQ

Rev.A Jun.-2025

蓝箭电子 BLUE ROCKET ELECTRONICS

DATA SHEET

/ Descriptions

200W V_{RMW}:5.0V~440V SOD-123FL

200W Surface Mount Transient Voltage Suppressor Stand-Off Voltage 5.0V~440V SOD-123FL thin package.

/ Features

AEC-Q101

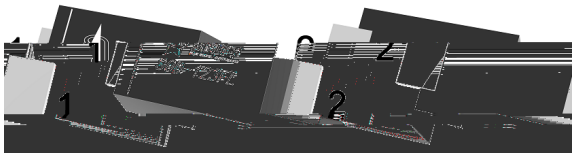
For surface mounted applications in order to optimize board space Glass passivated junction Low inductance,Qualified to AEC-Q101 Standards for High Reliability,HF Product.

/ Applications

General purpose,Meet the stringent requirements of automotive applications.

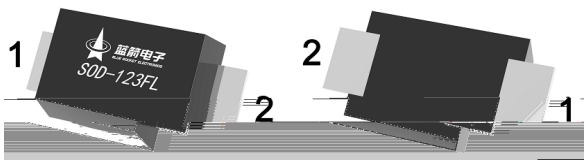
/ Equivalent Circuit

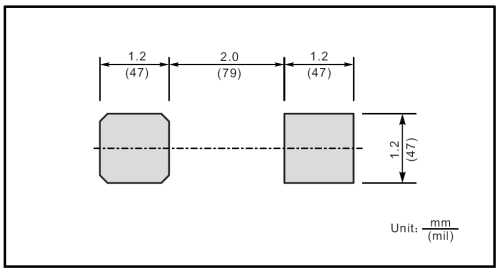
/ Pinning



PIN	DESCRIPTION
1	Cathode
2	Anode

The recommended mounting pad size





/ Marking

See Marking Instructions.

/ Absolute Maximum Ratings(Ta=25)

Parameter		Symbol	Rating	Unit
Peak Pulse Power Dissipation on T_A=25°C (Note 1,2,5, Fig1)		P_{PPM}	200	W
Peak Forward Surge Current (Note 3)		$I_{FSM(UNI)}$	20	A
Peak Pulse Current on 10/1000 us waveform (Note 1 Fig 2)		I_{PPM}	See Table 1	A
Steady State Power Dissipation (Note 4)		$P_{M(AV)}$	1	W
Operating Junction and Storage Range		T_j,T_{stg}	-55~150	℃
ESD Voltage per IEC6100-4-2	Contact	V_{ESD1}	± 8	kV
	Air	V_{ESD2}	± 15	
Typical Thermal Resistance (Note 7)		$R_{\theta JA}$ $R_{\theta JC}$ $R_{\theta JL}$	105 25 32	℃/W

NOTES

1. Non-repetitive current pulse per Fig 3 and derated above T_A=25℃ per Fig 2
2. Mounted on 5mm^2 copper pads to each terminal
3. 8.3ms single half sinewave, or equivalent square wave duty cycle=4 pulses per minutes maximum
4. lead temperature at T_L=75
5. Peak pulse powe. waveform is tp=10/1000us
6. A transient suppressor is selected according to the working peak reverse voltage (V_{RWM}), Which Should be equal to or greater than the DC or continuous peak operating voltage level
7. P.C.B. mounted with 0.2" X 0.2" (5 X 5 mm) copper pad areas.

/ Electrical Characteristics(Ta=25)

Type		Marking		V_{RMW}	Breakdown Voltage		Test Current	Reverse Leakage	Max. Clamp Voltage	Peak Pulse Current
					V_{BR}@I_T		I_T	I_R@V_{RWM}	V_C@I_{PP}	I_{PP}
					Min	Max				
Uni	Bi	Uni	Bi	V	V	V	mA	μA	V	A
BRSMF5.0AQ	BRSMF5.0CAQ	AEQ	CAEQ	5	6.4	7	10	400	9.2	21.7
BRSMF6.0AQ	BRSMF6.0CAQ	AGQ	CAGQ	6	6.67	7.37	10	400	10.3	19.4
BRSMF6.5AQ	BRSMF6.5CAQ	AKQ	CAKQ	6.5	7.22	7.98	10	250	11.2	17.9
BRSMF7.0AQ	BRSMF7.0CAQ	AMQ	CAMQ	7	7.78	8.6	10	100	12	16.7
BRSMF7.5AQ	BRSMF7.5CAQ	APQ	CAPQ	7.5	8.33	9.21	1	50	12.9	15.5
BRSMF8.0AQ	BRSMF8.0CAQ	ARQ	CARQ	8	8.89	9.83	1	25	13.6	14.7
BRSMF8.5AQ	BRSMF8.5CAQ	ATQ	CATQ	8.5	9.44	10.4	1	10	14.4	13.9
BRSMF9.0AQ	BRSMF9.0CAQ	AVQ	CAVQ	9	10	11.1	1	5	15.4	13
BRSMF10AQ	BRSMF10CAQ	AXQ	CAXQ	10	11.1	12.3	1	2.5	17	11.8
BRSMF11AQ	BRSMF11CAQ	AZQ	CAZQ	11	12.2	13.5	1	2.5	18.2	11
BRSMF12AQ	BRSMF12CAQ	BEQ	CBEQ	12	13.3	14.7	1	2.5	19.9	10.1
BRSMF13AQ	BRSMF13CAQ	BGQ	CBGQ	13	14.4	15.9	1	1	21.5	9.3
BRSMF14AQ	BRSMF14CAQ	BKQ	CBKQ	14	15.6	17.2	1	1	23.2	8.6
BRSMF15AQ	BRSMF15CAQ	BMQ	CBMQ	15	16.7	18.5	1	1	24.4	8.2
BRSMF16AQ	BRSMF16CAQ	BPQ	CBPQ	16	17.8	19.7	1	1	26	7.7
BRSMF17AQ	BRSMF17CAQ	BRQ	CBRQ	17	18.9	20.9	1	1	27.6	7.2
BRSMF18AQ	BRSMF18CAQ	BTQ	CBTQ	18	20	22.1	1	1	29.2	6.8
BRSMF20AQ	BRSMF20CAQ	BVQ	CBVQ	20	22.2	24.5	1	1	32.4	6.2
BRSMF22AQ	BRSMF22CAQ	BXQ	CBXQ	22	24.4	26.9	1	1	35.5	5.6
BRSMF24AQ	BRSMF24CAQ	BZQ	CBZQ	24	26.7	29.5	1	1	38.9	5.1
BRSMF26AQ	BRSMF26CAQ	CEQ	CCEQ	26	28.9	31.9	1	1	42.1	4.8
BRSMF28AQ	BRSMF28CAQ	CGQ	CCGQ	28	31.1	34.4	1	1	45.4	4.4
BRSMF30AQ	BRSMF30CAQ	CKQ	CCKQ	30	33.3	36.8	1	1	48.4	4.1
BRSMF33AQ	BRSMF33CAQ	CMQ	CCMQ	33	36.7	40.6	1	1	53.3	3.8
BRSMF36AQ	BRSMF36CAQ	CPQ	CCPQ	36	40	44.2	1	1	58.1	3.4

/ Electrical Characteristics(Ta=25)

Type		Marking		V_{RMW}	Breakdown Voltage		Test Current	Reverse Leakage	Max. Clamp Voltage	Peak Pulse Current
					V_{BR}@I_T		I_T	I_R@V_{RWM}	V_C@I_{PP}	I_{PP}
					Min	Max				
Uni	Bi	Uni	Bi	V	V	V	mA	μA	V	A
BRSMF40AQ	BRSMF40CAQ	CRQ	CCRQ	40	44.4	49.1	1	1	64.5	3.1
BRSMF43AQ	BRSMF43CAQ	CTQ	CCTQ	43	47.8	52.8	1	1	69.4	2.9
BRSMF45AQ	BRSMF45CAQ	CVQ	CCVQ	45	50	55.3	1	1	72.7	2.8
BRSMF48AQ	BRSMF48CAQ	CXQ	CCXQ	48	53.3	58.9	1	1	77.4	2.6
BRSMF51AQ	BRSMF51CAQ	CZQ	CCZQ	51	56.7	62.7	1	1	82.4	2.4
BRSMF54AQ	BRSMF54CAQ	DEQ	CDEQ	54	60	66.3	1	1	87.1	2.3
BRSMF58AQ	BRSMF58CAQ	DGQ	CDGQ	58	64.4	71.2	1	1	93.6	2.1
BRSMF60AQ	BRSMF60CAQ	DKQ	CDKQ	60	66.7	73.7	1	1	96.8	1.8
BRSMF64AQ	BRSMF64CAQ	DMQ	CDMQ	64	71.1	78.6	1	1	103	1.7
BRSMF70AQ	BRSMF70CAQ	DPQ	CDPQ	70	77.8	86	1	1	113	1.5
BRSMF75AQ	BRSMF75CAQ	DRQ	CDRQ	75	83.3	92.1	1	1	121	1.4
BRSMF78AQ	BRSMF78CAQ	DTQ	CDTQ	78	86.7	95.8	1	1	126	1.4
BRSMF85AQ	BRSMF85CAQ	DVQ	CDVQ	85	94.4	104	1	1	137	1.3
BRSMF90AQ	BRSMF90CAQ	DXQ	CDXQ	90	100	111	1	1	146	1.2
BRSMF100AQ	BRSMF100CAQ	DZQ	CDZQ	100	111	123	1	1	162	1.1
BRSMF110AQ	BRSMF110CAQ	EEQ	CEEQ	110	122	135	1	1	177	1
BRSMF120AQ	BRSMF120CAQ	EGQ	CEGQ	120	133	147	1	1	193	0.9
BRSMF130AQ	BRSMF130CAQ	EKQ	CEKQ	130	144	159	1	1	209	0.8
BRSMF150A	BRSMF150CAQ	EMQ	CEMQ	150	167	185	1	1	243	0.7
BRSMF160AQ	BRSMF160CAQ	EPQ	CEPQ	160	178	197	1	1	259	0.7
BRSMF170AQ	BRSMF170CAQ	ERQ	CERQ	170	189	209	1	1	275	0.6
BRSMF180AQ	BRSMF180CAQ	ETQ	CETQ	180	201	222	1	1	292	0.5
BRSMF190AQ	BRSMF190CAQ	EVQ	CEVQ	190	211	232	1	1	308	0.5
BRSMF200AQ	BRSMF200CAQ	EXQ	CEXQ	200	224	247	1	1	324	0.5
BRSMF220AQ	BRSMF220CAQ	E22Q	CE22Q	220	246	272	1	1	356	0.5

/ Electrical Characteristics(Ta=25)

Type		Marking		Stand-off Voltage	Breakdown Voltage		Test Current	Reverse Leakage	Max. Clamp Voltage	Peak Pulse Current
				V_{RMW}	$V_{BR}@I_T$		I_T	$I_R@V_{RWM}$	$V_C@I_{PP}$	I_{PP}
					Min	Max				
Uni	Bi	Uni	Bi	V	V	V	mA	μA	V	A
BRSMF250AQ	BRSMF250CAQ	E25Q	CE25Q	250	279	309	1	1	405	0.5
BRSMF300AQ	BRSMF300CAQ	E30Q	CE30Q	300	335	371	1	1	486	0.45
BRSMF350AQ	BRSMF350CAQ	E35Q	CE35Q	350	391	432	1	1	567	0.4
BRSMF400AQ	BRSMF400CAQ	E40Q	CE40Q	400	447	494	1	1	648	0.35
BRSMF440AQ	BRSMF440CAQ	E44Q	CE44Q	440	492	543	1	1	713	0.3

/ Electrical Characteristic Curve

Fig.1 Peak Pulse Power Rating Curve

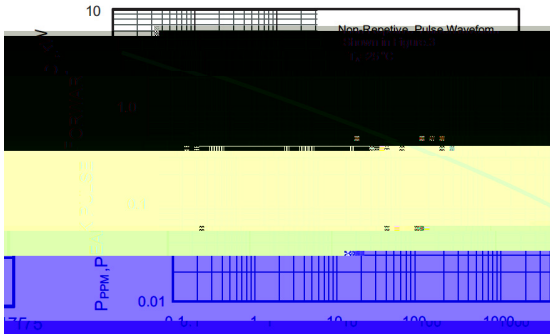
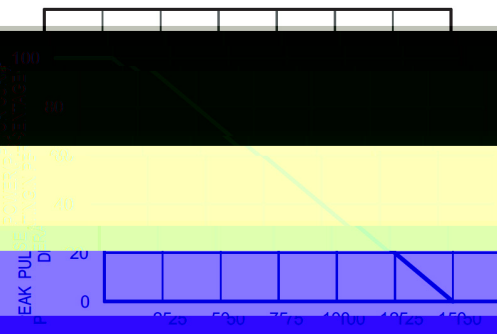
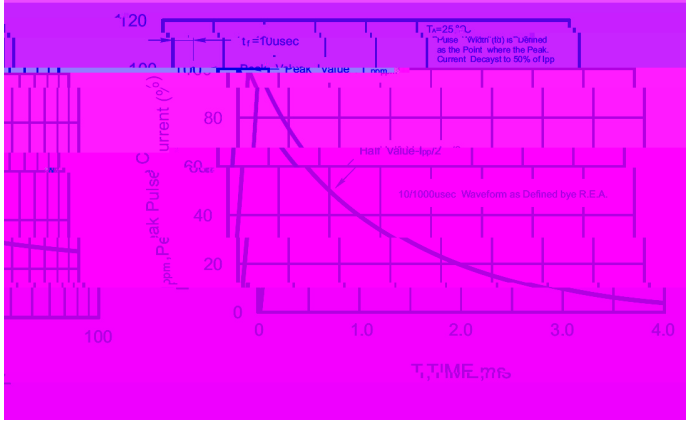
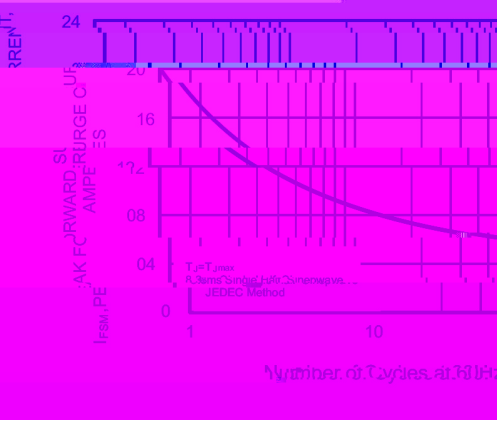


Fig.2 Forward Current Derating Curve



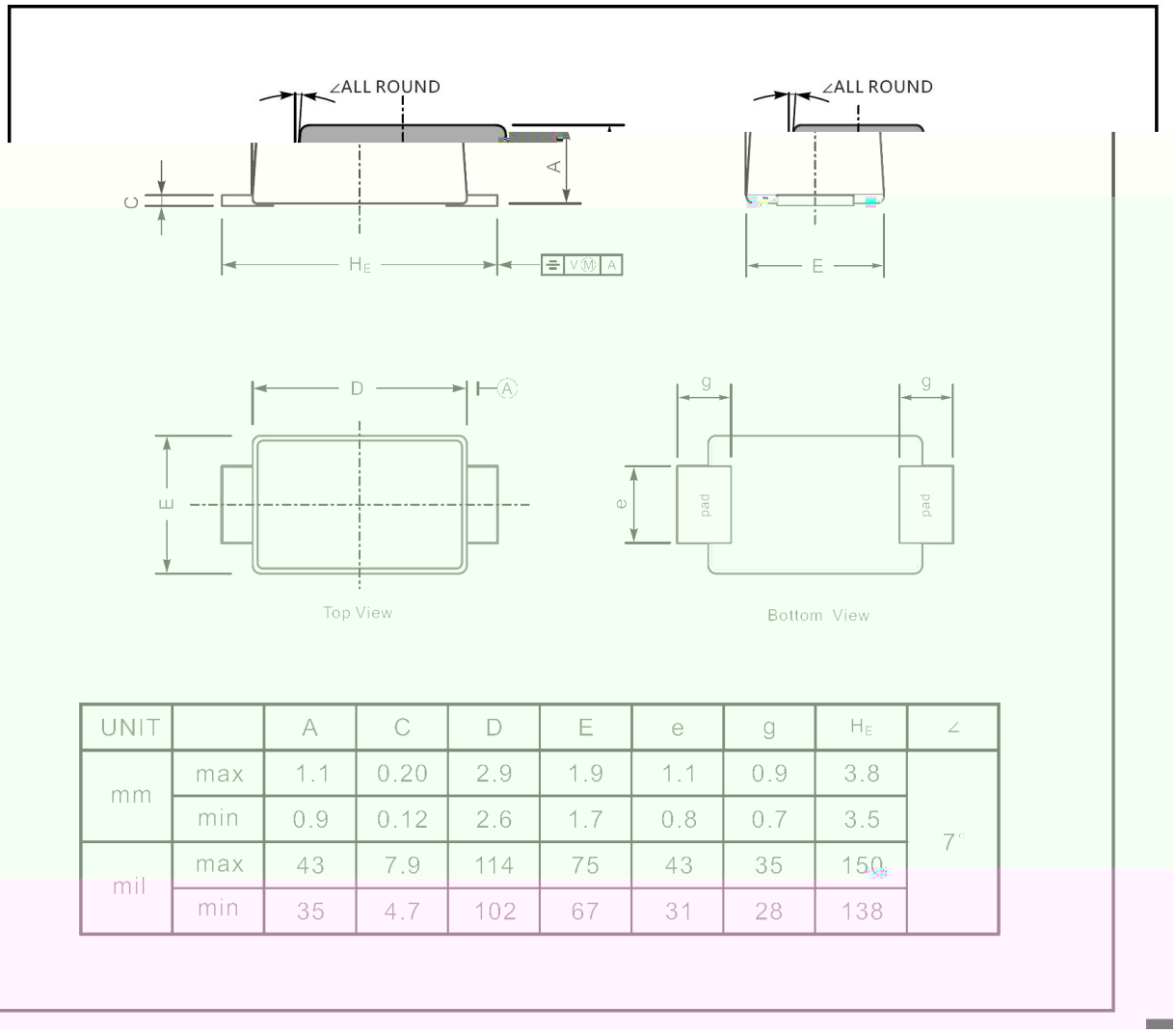


Forward Surge Current



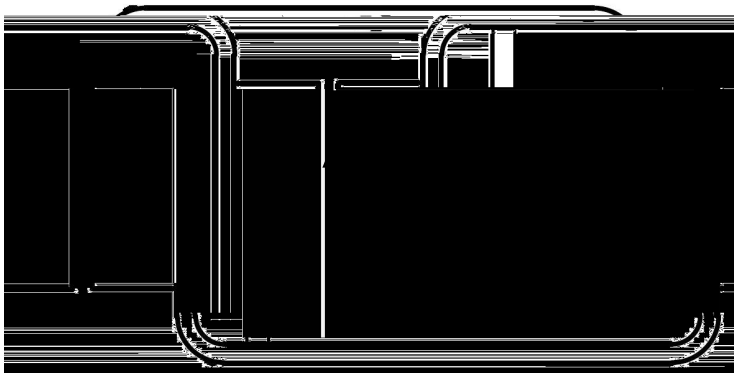
/ Package Dimensions

SOD-123FL



UNIT		A	C	D	E	e	g	H_E	∠
mm	max	1.1	0.20	2.9	1.9	1.1	0.9	3.8	7°
	min	0.9	0.12	2.6	1.7	0.8	0.7	3.5	
mil	max	43	7.9	114	75	43	35	150	
	min	35	4.7	102	67	31	28	138	

/ Marking Instructions



AE

Q

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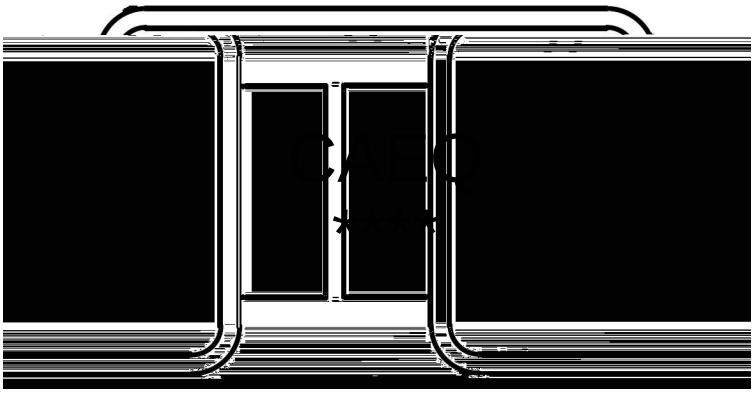
Note:

AE	Product Type Code
Q:	Automobile halogen-free product Code
****	Lot No. Code, code change with Lot No.



CAE

Q

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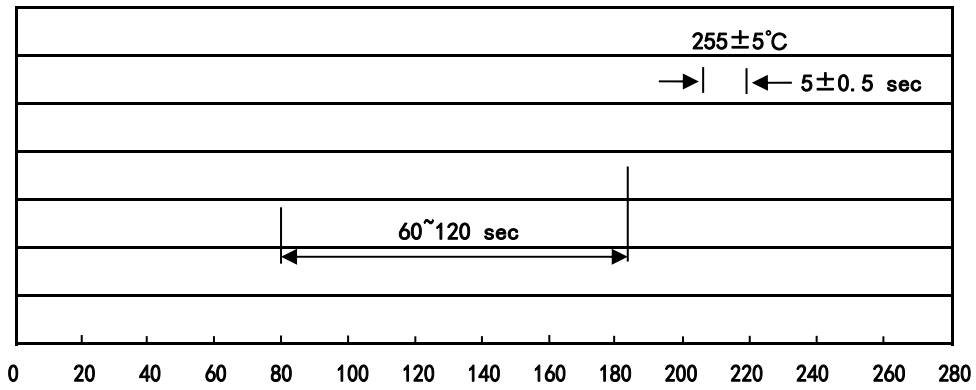
Note:

CAE	Product Type Code
Q:	Automobile halogen-free product Code
****	Lot No. Code, code change with Lot No.

( ) / Temperature Profile for IR Reflow Soldering(Pb-Free)



Note:

1	150	200		60	120sec;	1.Preheating:150~200	, Time:60~120sec.
2	255±5				5±0.5sec;	2.Peak Temp.:255±5	, Duration:5±0.5sec.
3			2	10	/sec.	3. Cooling Speed: 2~10	/sec.

/ Resistance to Soldering Heat Test Conditions

260±5	10±1 sec.	Temp.:260±5℃	Time:10±1 sec

/ Packaging SPEC.

/ REEL

Package Type	Units					Dimension		(unit mm³)
	Units/Reel /	Reels/Inner Box /	Units/Inner Box /	Inner Boxes/Outer Box /	Units/Outer Box /	Reel	Inner Box	Outer Box
SOD-123FL	3,000	8	24,000	6	144,000	7 ×8	185×180×105	390×385×205

/ Notices