



SURFACE MOUNT SUPERFAST RECOVERY RECTIFIER

REVERSE VOLTAGE: 50 to 600 VOLTS
FORWARD CURRENT: 2.0 AMPERE

FEATURES

- For surface mounted applications
- Low profile package
- Built-in strain relief
- Easy pick and place
- Superfast recovery times for high efficiency
- Plastic package has Underwriters Laboratory
Flammability Classification 94V-0
- High temperature soldering : 260°C /10 seconds at terminals

MECHANICAL DATA

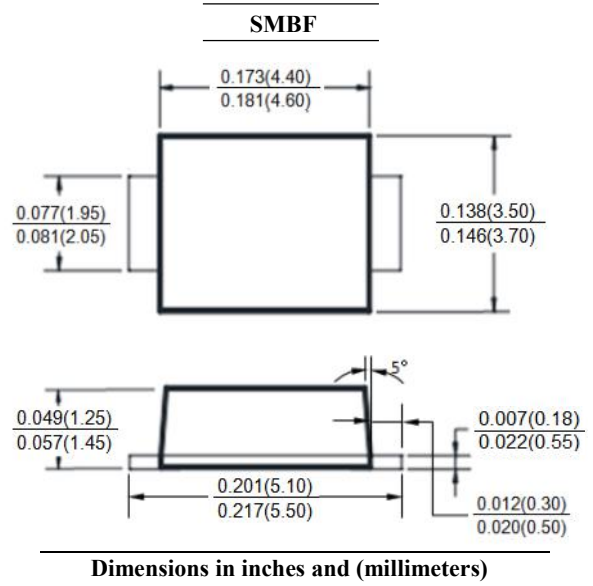
Case: Molded plastic, SMBFL

Terminals: Pure tin plated, lead free

Polarity: Indicated by cathode band

Packaging: 12mm tape per EIA STD RS-481

Weight: 0.060 gram



Maximum Ratings and Electrical Characteristics

Ratings at 25°C ambient temperature unless otherwise specified.

Single phase, half wave, 60Hz, resistive or inductive load.

For capacitive load, derate current by 20%.

	Symbols	ES2A	ES2B	ES2C	ES2D	ES2E	ES2G	ES2J	Units
Maximum Recurrent Peak Reverse Voltage	V _{RRM}	50	100	150	200	300	400	600	Volts
Maximum RMS Voltage	V _{RMS}	35	70	105	140	210	280	420	Volts
Maximum DC Blocking Voltage	V _{DC}	50	100	150	200	300	400	600	Volts
Maximum Average Forward Rectified Current at T _L =110℃	I _(AV)	2.0							Amp
Peak Forward Surge Current, 8.3ms single half-sine-wave superimposed on rated load (JEDEC method)	I _{FSM}	50							Amp
Maximum Forward Voltage at 2.0A	V _F	0.95				1.30		1.70	Volts
Maximum Reverse Current at T _A =25℃ at Rated DC Blocking Voltage T _A =100℃	I _R	5.0 150							μAmp
Typical Junction Capacitance (Note 1)	C _J	25							pF
Typical Thermal Resistance (Note 2)	R _{θJL}	20							℃/W
Maximum Reverse Recovery Time (Note 3)	T _{RR}	35							nS
Operating Junction Temperature Range	T _J	-55 to +150							℃
Storage Temperature Range	T _{stg}	-55 to +150							℃

NOTES:

1- Measured at 1 MHz and applied reverse voltage of 4.0 VDC.

2- Thermal resistance from junction to lead mounted on P.C.B. with 0.4 x 0.4" (10.0 x 10.0mm) copper pad areas

3- Reverse Recovery Test Conditions: I_F=.5A, I_R=1A, I_{RR}=.25A.



RATINGS AND CHARACTERISTIC CURVES

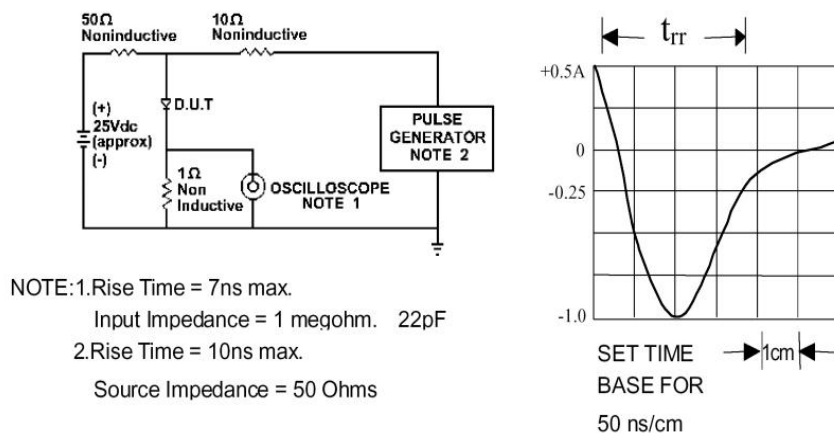


Fig. 1-REVERSE RECOVERY TIME CHARACTERISTIC AND TEST CIRCUIT DIAGRAM

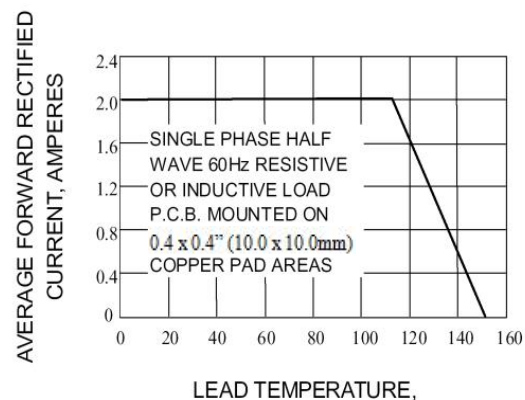


Fig. 2-MAXIMUM AVERAGE FORWARD CURRENT RATING

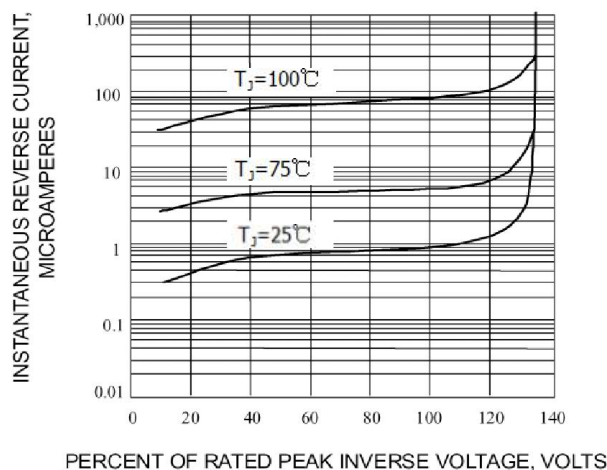


Fig. 3-TYPICAL REVERSE CHARACTERISTICS

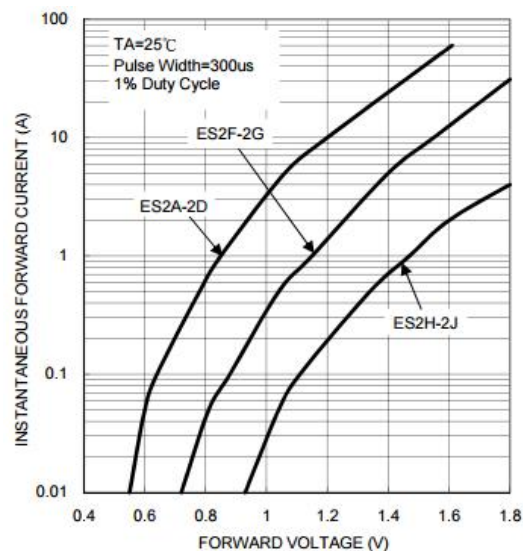


Fig. 4-TYPICAL FORWARD CHARACTERISTICS

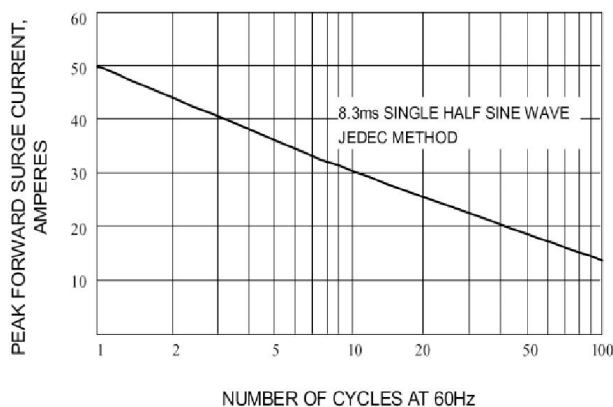


Fig. 5-MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

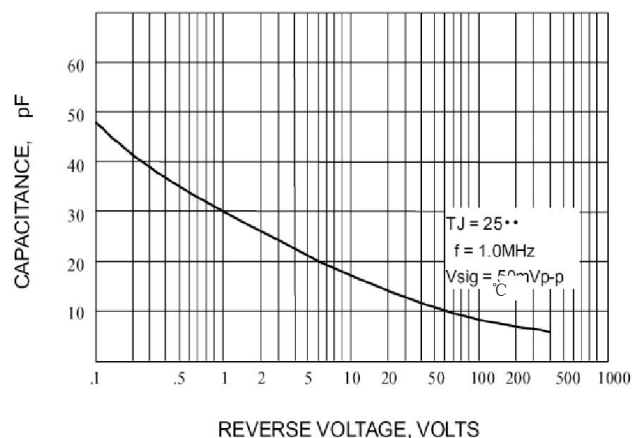
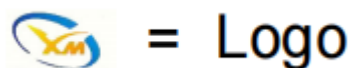


Fig. 6-TYPICAL JUNCTION CAPACITANCE



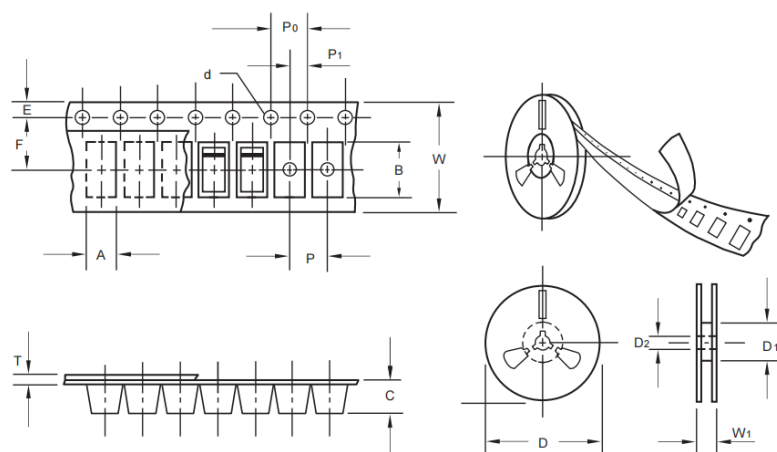
MARKING INFORMATION



= Logo

ES2*=Marking Code

Packing information



unit:mm

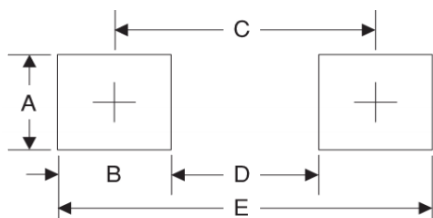
Item	Symbol	Tolerance	SMBF
Carrier width	A	0.1	3.81
Carrier length	B	0.1	5.61
Carrier depth	C	0.1	1.60
Sprocket hole	d	0.05	1.50
13" Reel outside diameter	D	2.0	330.00
13" Reel inner diameter	D ₁	min	50.00
Feed hole diameter	D ₂	0.5	13.00
Sprocket hole position	E	0.1	1.75
Punch hole position	F	0.1	5.50
Punch hole pitch	P	0.1	4.00
Sprocket hole pitch	P ₀	0.1	4.00
Embossment center	P ₁	0.1	2.00
Overall tape thickness	T	0.1	0.30
Tape width	W	0.3	12.00
Reel width	W ₁	1.0	12.30

Note: Devices are packed in accordance with EIA standard RS-481-A and specifications listed above.

Reel packing

PACKAGE	REEL SIZE	REEL (pcs)	COMPONENT SPACING (mm)	BOX (pcs)	INNER BOX (mm)	REEL DIA, (mm)	CARTON SIZE (mm)	CARTON (pcs)	APPROX. GROSS WEIGHT (kg)
SMBF	13"	5,000	4.0	10,000	190*190*41	330	365*365*360	80,000	14.0

Suggested Pad Layout

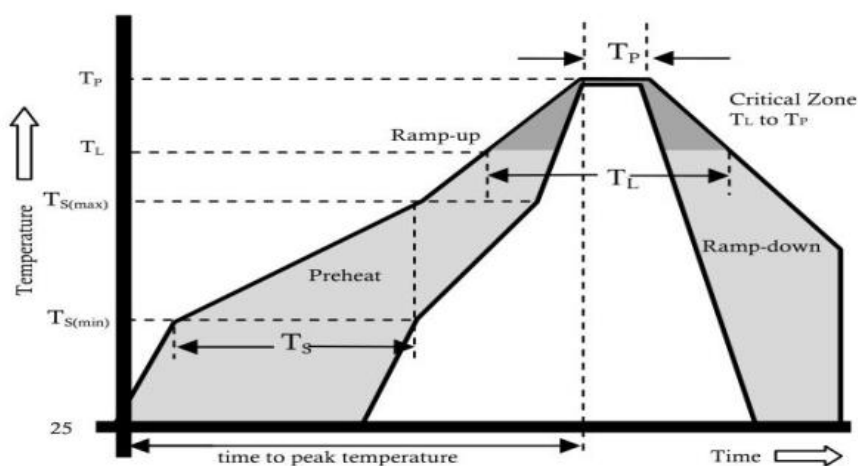


Symbol	Unit (mm)	Unit (inch)
A	2.54	0.100
B	1.8	0.071
C	4.8	0.189
D	3.0	0.118
E	6.6	0.260



Operating Conditions: ReCommended Welding Temp

Reflow Profile



Reflow Condition		Pb-Free Assembly
Pre Heat	Temperature Min.	+150°C
	Temperature Max.	+200°C
	Time(Min to Max)	60-180 secs.
Average ramp up rate(Liquidus Temp(T_L) to peak)		3°C/sec. Max.
TS(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)		25 secs.
Ramp-down Rate		6°C/sec. Max.
Time 25°C to peak Temp (T_P)		8 min. Max.
Do not exceed		+260°C

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材質成份表 Component Composition Sheet

序号	材料名称	规格	(ICP)環境管理物質之測試結果 ppm (mg / Kg)						检测机构	证书号	备注
			Pb (鉛)	Cd (鎘)	Hg (汞)	Cr 6+ (六價鉻)	PBB (多溴聯苯)	PBDE 多溴化二苯醚			
1	二极管	ES2J	20451↑	ND	ND	ND	ND	ND	通标标准技术服务(重庆)有限公司	CKGEC24001311901	

说明：1. ND表示未检（MDL），阴性=未检测到六价格

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产品关键物料信息表

物料名称	材质	型号	供应商信息
芯片	硅	60MIL	山东科芯电子有限公司/济南科盛电子有限公司
框架	铜		中铝洛阳铜加工有限公司
锡膏	锡		东莞市仁信电子有限公司
环氧树脂	二氧化硅		江苏华海诚科新材料股份有限公司
电镀	锡	Sn99. 99A	云南锡业新材料有限公司



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