YFSEMI

High Efficiency Rectifier
Surface Mount - 1A - US1x

US1x

LF RoHS

Features

- The plastic package carries UL Flammability Classification 94V-0
- For surface mounted applications
- Low reverse leakage
- Built-in strain relief, ideal for automated placement
- High forward surge current capability
- High temperature soldering guaranteed:260℃/10 seconds at terminals

Mechanical Characteristics

- Case: SMA(DO-214AC) package molded plastic body over passivated chip
- Terminals: Solder plated, solderable per MIL-STD-750, Method 2026
- Polarity: Color band denotes cathode end
- Mounting Position: Any
- Weight: 0.0021 ounce, 0.059 grams

Absolute Maximum Ratings and Electrical Parameters (TA=25°C unless otherwise specified)

PARAMETER		SYMBOL	US1A	US1B	US1D	US1G	US1J	US1K	US1M	UNIT
Maximum repetitive peak reverse voltage		V_{RRM}	50	100	200	400	600	800	1000	V
Maximum RMS voltage		V_{RMS}	35	70	140	280	420	560	700	V
Maximum DC blocking voltage		V_{DC}	50	100	200	400	600	800	1000	V
Maximum average forward rectified current		I_{AV}	1							A
Peak forward surge current 8.3ms single half sine-wave superimposed on rated load		I_{FSM}	30							A
Maximum instantaneous forward voltage at 1A		V_F	1			1.4	1.7			V
Maximum DC reverse current at rated DC blocking voltage	T_A=25 ℃	I_R	5							uA
	T_A=100 ℃	I_{RT}	50							uA
Maximum reverse recovery time (NOTE 1)		t_{rr}	50				75			ns
Typical junction capacitance (NOTE 2)		C_J	15							pF
Typical Thermal Resistance Junction to Ambient (NOTE3)		$R_{\theta JA}$	85							℃/W
Typical Thermal Resistance Junction to Lead (NOTE3)		$R_{\theta JL}$	28							℃/W
Operating Temperature Range		T_J	-55 to 150							℃
Storage Temperature Range		T_{STG}	-55 to 150							℃

Note1: Reverse recovery condition IF=0.5A,IR=1.0A,Irr=0.25A

Note2: Measured at 1MHz and applied reverse voltage of 4.0V DC.

Note3: PCB. mounted with 5×5mm copper pad areas

Summary of Packing Options

Package	Packing Description	Packing Quantity	Industry Standard
SMA	Tape/Reel,11" reel	5000	EIA-481-1
	Tape/Reel,7" reel	2000	EIA-481-1

Rating And Characteristic Curves (T_A=25°C unless otherwise noted)

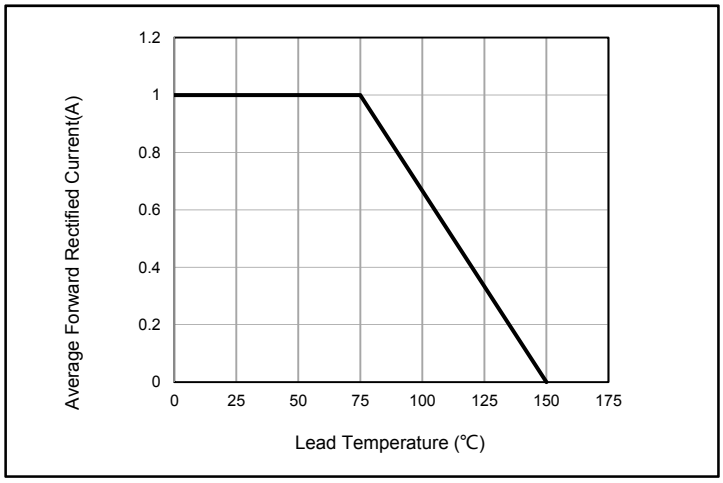


Fig. 1 - Forward Current Derating Curve

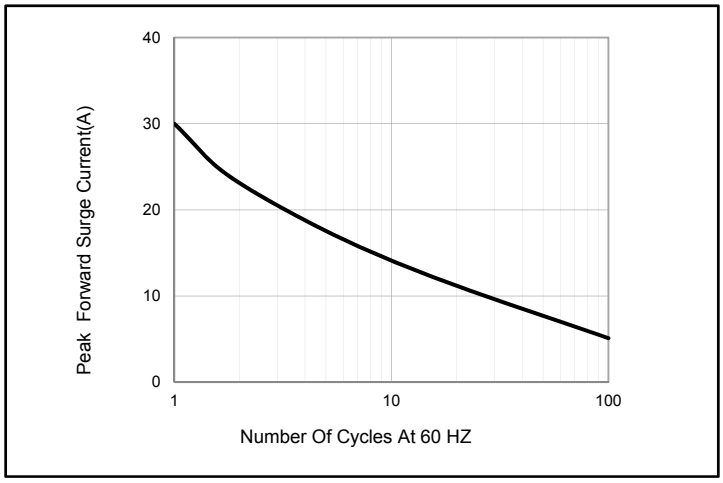


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

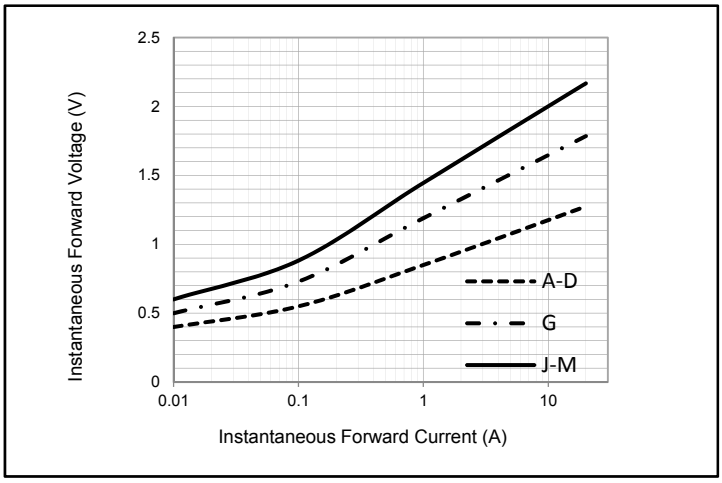


Fig. 3 - Typical Instantaneous Forward Characteristics

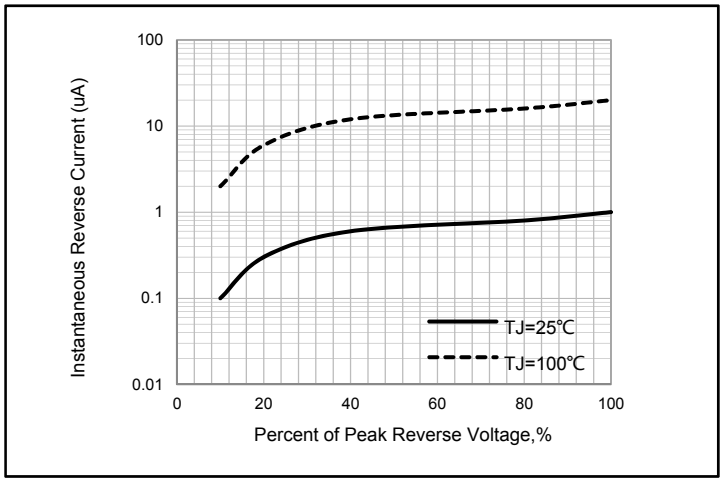


Fig. 4 - Typical Reverse Characteristics

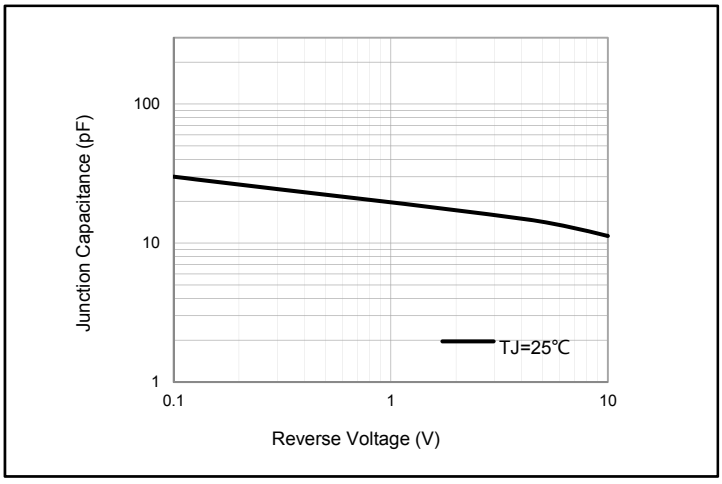


Fig. 5 - Typical Junction Capacitance

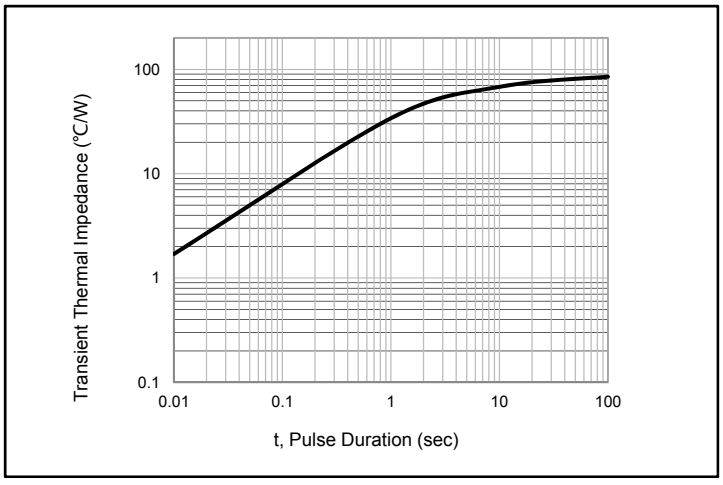
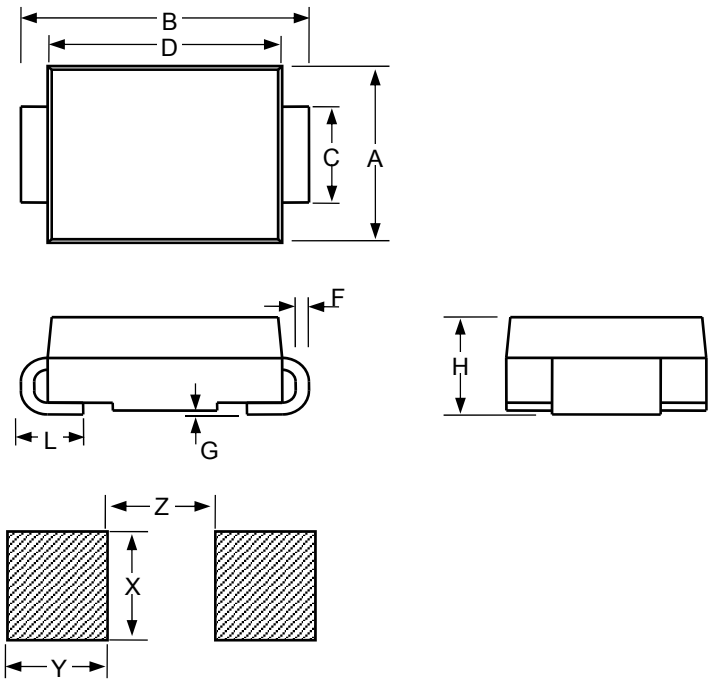


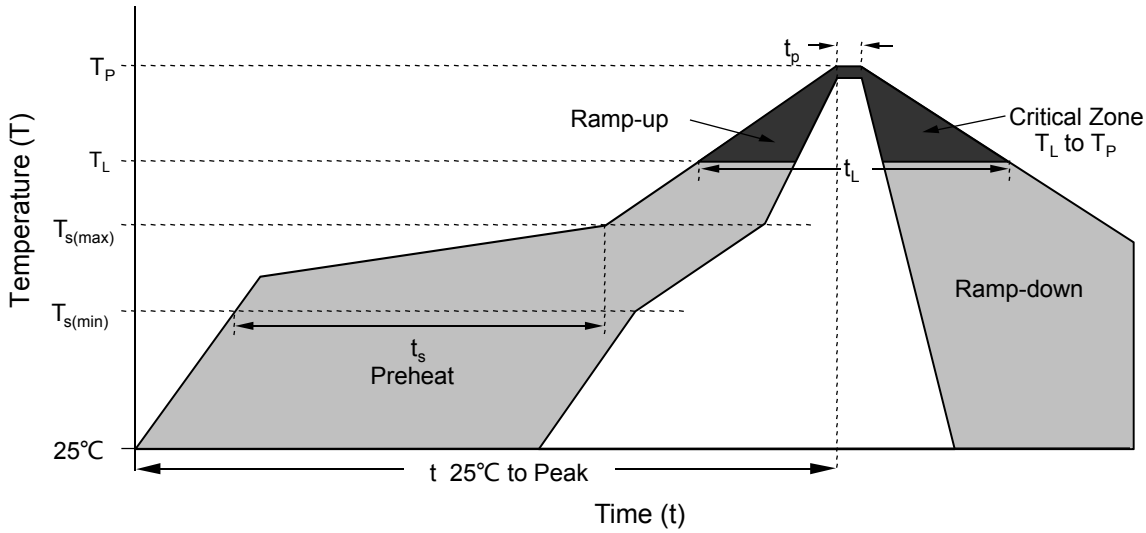
Fig. 6 - Typical Transient Thermal Impedance

Package Dimensions



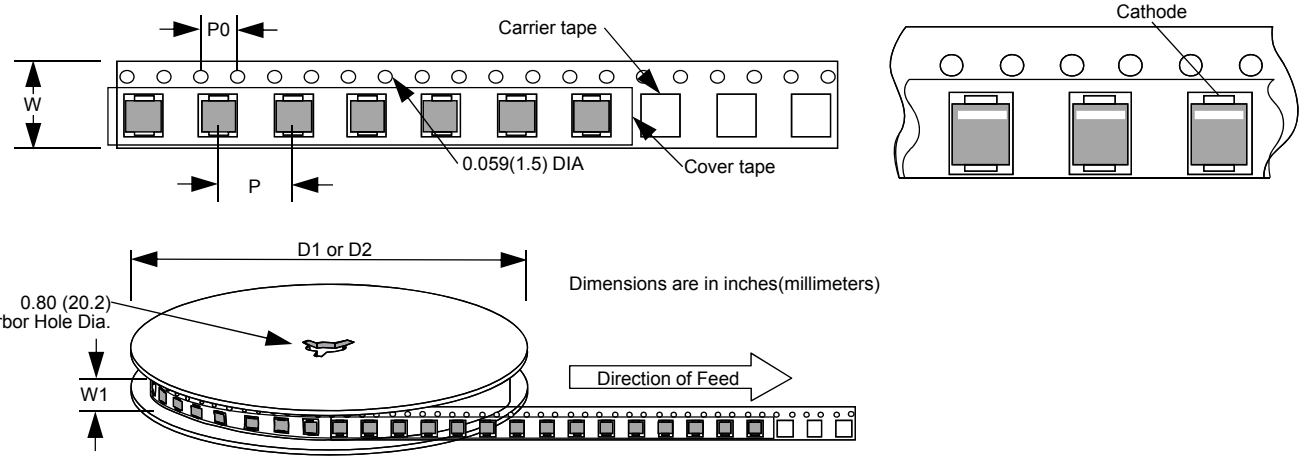
SMA						
Dimension	Inches			Millimeters		
	MIN	NOM	MAX	MIN	NOM	MAX
A	0.1		0.11	2.54		2.8
B	0.194		0.223	4.93		5.66
C	0.051		0.067	1.3		1.7
D	0.157		0.177	3.99		4.5
L	0.03		0.06	0.76		1.52
F	0.006		0.012	0.152		0.305
G	-		0.008	-		0.203
H	0.078		0.095	1.98		2.42
X		0.085			2.16	
Y		0.07			1.78	
Z		0.079			2	

Soldering Parameters



Reflow Condition		Lead-free assembly
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/second max
$T_{S(max)}$ to TL - Ramp-up Rate		3°C/second max
Reflow	- Temperature (T_L) (Liquidus)	217°C
	- Time (t_L)	60 – 150 secs
Peak Temperature (T_P)		$260^{+0/-5\ °C}$
Time within 5°C of actual peak Temperature (t_p)		20 – 40 secs
Ramp-down Rate		6°C/second max
Time 25°C to peak Temperature (t)		8 minutes Max.
Do not exceed		260°C

Tape and Reel Specification



Dimension	Inches			Millimeters		
	MIN	NOM	MAX	MIN	NOM	MAX
P		0.157			4	
P0		0.157			4	
W		0.472			12	
W1		0.492			12.5	
D1		7			177.8	
D2		11			279.4	

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