

# Surface Mount Rectifier



## Features:

- Low Profile Package
- For Surface Mounted Applications
- Built-In Strain Relief, Ideal for Automated Placement
- High Temperature Soldering : 250°C/10 seconds at Terminals
- Easy Pick and Place
- Ultrafast Recovery Times for High Efficiency
- Low Forward Voltage, Low Power Loss

## Mechanical Data

- Case : JEDEC DO-214AA, molded plastic over passivated chip
- Terminals : solder plated, solderable per MIL-STD-750, method 2026
- Polarity : Colour band denotes cathode end
- Weight : 0.002oz, 0.064g

## Maximum Ratings and Thermal Characteristics

Ratings at 25°C ambient temperature unless otherwise specified

Characteristic	Symbol	US1J-13-F	US1K-13-F	US1M-13-F	Units
Maximum repetitive peak reverse voltage	$V_{RRM}$	600	800	1,000	V
Maximum RMS voltage	$V_{RWS}$	420	560	700	V
Maximum DC blocking voltage	$V_{DC}$	600	800	1,000	V
Maximum average forward rectified current at $T_L=110^{\circ}\text{C}$	$I_{F(AV)}$	1			A
Peak forward surge current 8.3ms single half sine-wave superimposed on rated load (JEDEC Method)	$I_{FSM}$	30			A
Maximum instantaneous forward voltage at 1A	$V_F$	1.7			V
Maximum DC reverse current $T_A=25^{\circ}\text{C}$ at rated DC blocking voltage $T_A=125^{\circ}\text{C}$	$I_R$	5 100			$\mu\text{A}$
Maximum reverse recovery time at $I_F=0.5\text{A}$ $I_R=1\text{A}$ $I_{rr}=0.25\text{A}$	$t_{rr}$	75			ns
Typical junction capacitance at 4V,1MHz	$C_J$	15			pF
Maximum thermal resistance (Note1)	$R_{\theta JA}$ $R_{\theta JL}$	55 20			$^{\circ}\text{C/W}$
Operating junction and storage temperature range	$T_J, T_{STG}$	-55 to +150			$^{\circ}\text{C}$

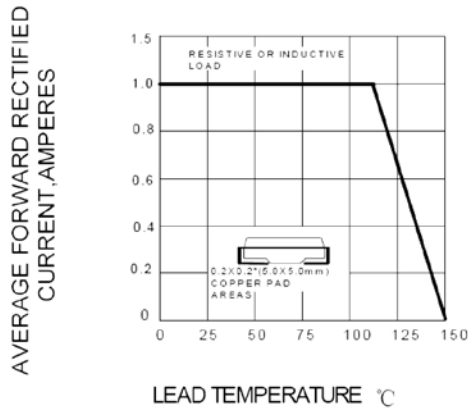
### Note:

(1) PCB mounted on 0.2" x 0.2" (5 x 5mm<sup>2</sup>) copper pad areas

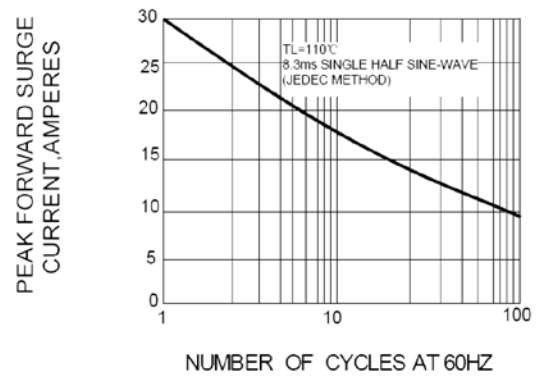
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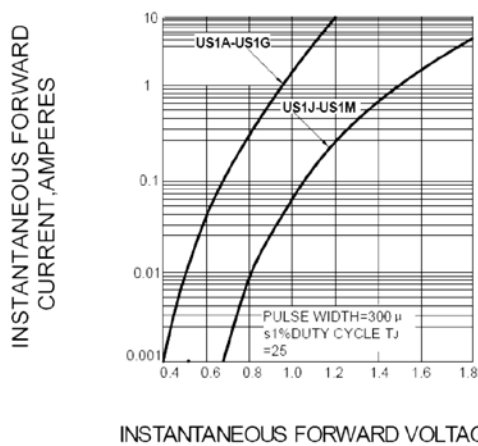
**FIG.1 – FORWARD CURRENT DERATING CURVE**



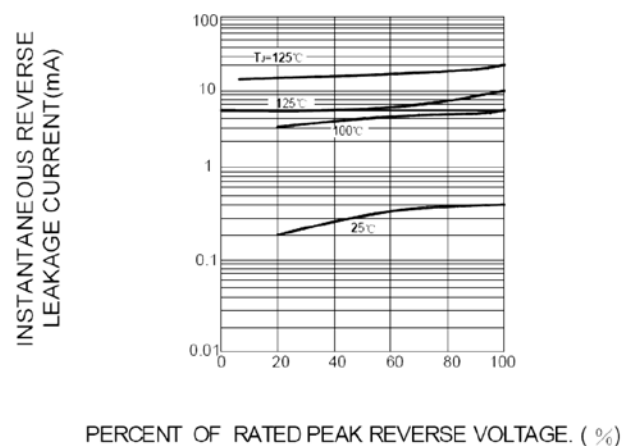
**FIG.2 – MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT**



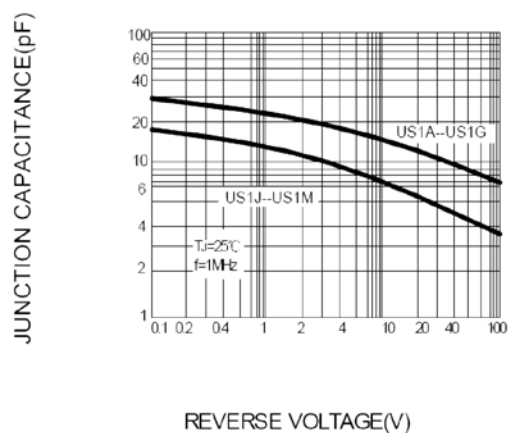
**FIG.3 – TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS**



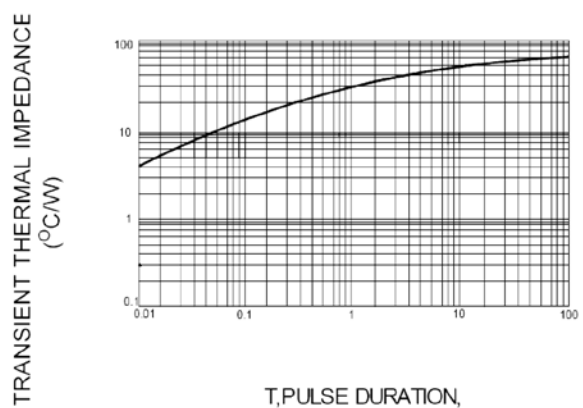
**FIG.4 – TYPICAL REVERSE CHARACTERISTICS**



**FIG.5 – TYPICAL JUNCTION CAPACITANCE**



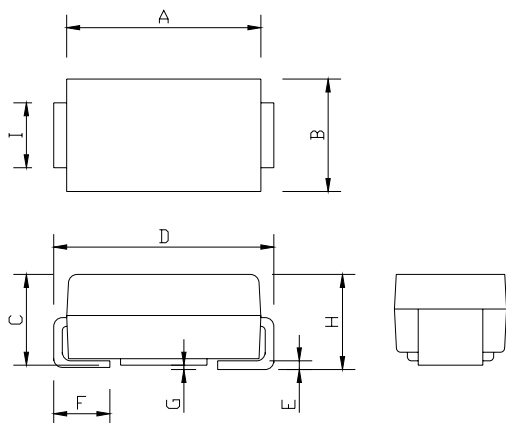
**FIG.6 – TYPICAL TRANSIENT THERMAL IMPEDANCE**



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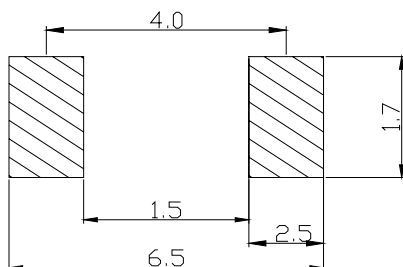
## Package Outline Dimensions



DO-214AC(SMA)		
Dim.	Min.	Max.
A	4.25	4.65
B	2.4	2.8
C	1.85	2.15
D	4.85	5.35
E	0.2 Typ.	
F	0.9	1.5
G	0.2 Max.	
H	1.9	2.3
I	1.35	1.65

Dimensions : Millimetres

## Soldering Footprint



Dimensions : Millimetres

## Package Information

Device	Package	Shipping
US1J-13-F US1K-13-F US1M-13-F	DO-214AC(SMA)	5,000 / Tape & Reel

## Part Number Table

Description	Part Number
Surface Mount Rectifier	US1J-13-F
	US1K-13-F
	US1M-13-F

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