

# US1A SERIES

## SURFACE MOUNT ULTRAFAST RECTIFIER

**VOLTAGE** 50 to 1000 Volt **CURRENT** 1 Ampere

**SMA / DO-214AC**

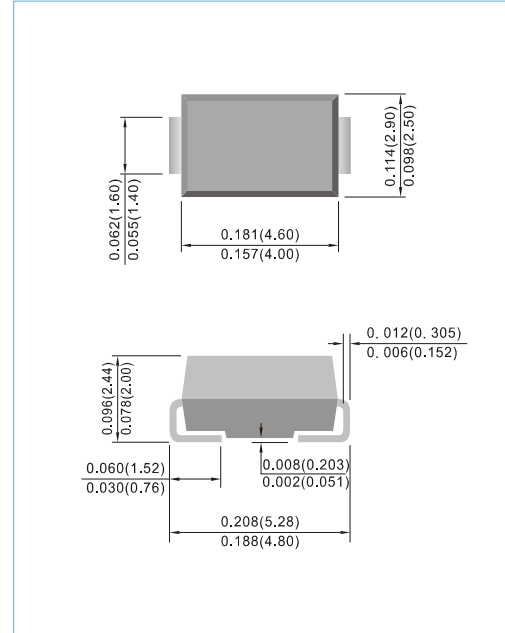
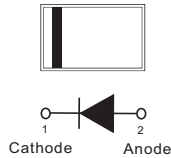
Unit : inch(mm)

### FEATURES

- For surface mounted applications in order to optimize board space
- Easy pick and place
- Ultrafast recovery times for high efficiency
- Plastic package has Underwriters Laboratory Flammability Classification 94V-O
- Glass passivated junction
- Lead free in compliance with EU RoHS 2.0
- Green molding compound as per IEC 61249 standard

### MECHANICAL DATA

- Case: JEDEC DO-214AC molded plastic
- Terminals: Solder plated, solderable per MIL-STD-750, Method 2026
- Polarity: Color band denotes cathode end
- Standard packaging: 12mm tape (EIA-481)
- Weight: 0.0023 ounces, 0.0679 grams
- Marking : Part number



## MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified. Single phase, half wave, 60 Hz, resistive or inductive load.  
For capacitive load, derate current by 20%.

PARAMETER	SYMBOL	US1A	US1B	US1D	US1G	US1J	US1K	US1M	UNITS
Maximum Recurrent Peak Reverse Voltage	V <sub>RRM</sub>	50	100	200	400	600	800	1000	V
Maximum RMS Voltage	V <sub>RMS</sub>	35	70	140	280	420	560	700	V
Maximum DC Blocking Voltage	V <sub>DC</sub>	50	100	200	400	600	800	1000	V
Maximum Average Forward Current	I <sub>F(AV)</sub>	1							A
Peak Forward Surge Current : 8.3ms single half sine-wave superimposed on rated load	I <sub>FSM</sub>	30							A
Maximum Forward Voltage at 1A	V <sub>F</sub>	1			1.3	1.7			V
Maximum DC Reverse Current at Rated DC Blocking Voltage T <sub>J</sub> = 25°C T <sub>J</sub> = 125°C	I <sub>R</sub>	1 100							µA
Typical Junction Capacitance (Note 2)	C <sub>J</sub>	17							pF
Typical Thermal Resistance (Note 3)	R <sub>θJL</sub>	30							°C / W
Typical Thermal Resistance (Note 4)	R <sub>θJC</sub>	28							°C / W
Maximum Reverse Recovery Time (Note 1)	T <sub>RR</sub>	50				100			ns
Operating Junction and Storage Temperature Range	T <sub>J</sub> , T <sub>STG</sub>	-55 to +150							°C

NOTES: 1. Reverse Recovery Test Conditions:  $I_F=0.5A$ ,  $I_R=-1A$ ,  $I_{rr}=-0.25A$

2. Measured at 1 MHz and applied  $V_r = 4$  volts.

3. 8mm<sup>2</sup> (0.013mm thick) land areas.

4. Mounted on 100cm<sup>2</sup> FR4 PCB.

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### RATING AND CHARACTERISTIC CURVES

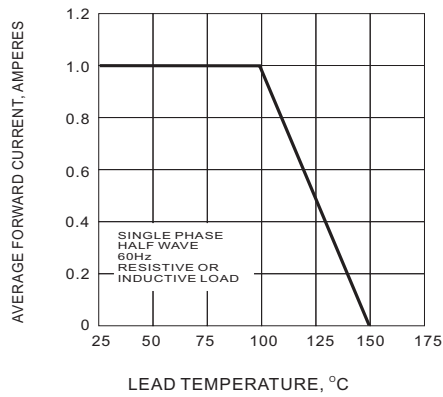


Fig.1 FORWARD CURRENT DERATING CURVE

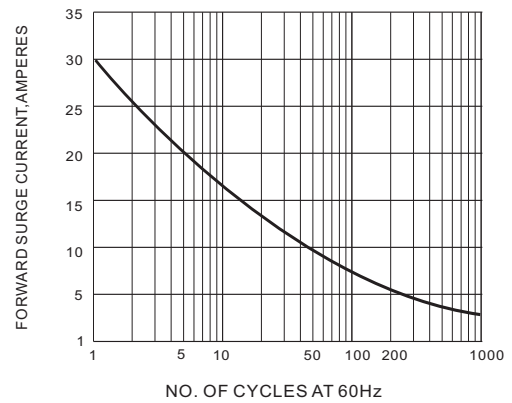


Fig.2 PEAK FORWARD SURGE CURRENT

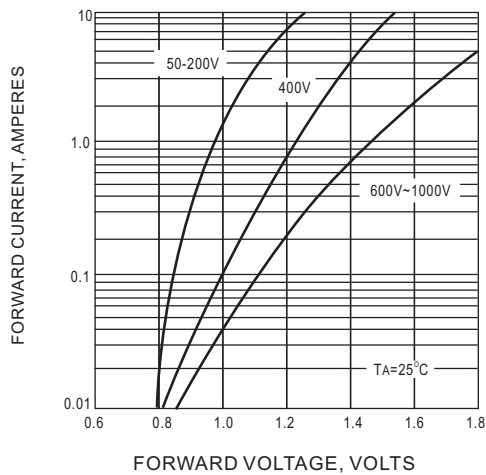


Fig.3 FORWARD CHARACTERISTICS

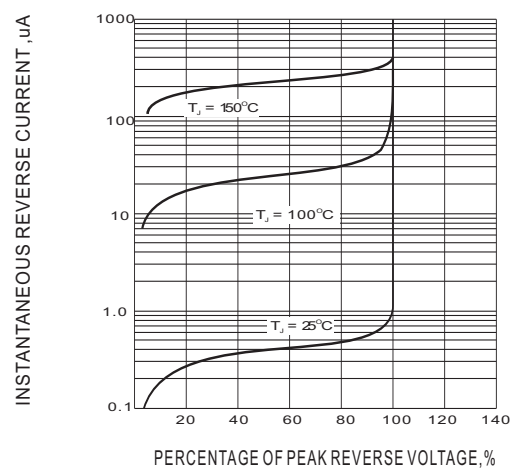


Fig.4-TYPICAL REVERSE CHARACTERISTIC

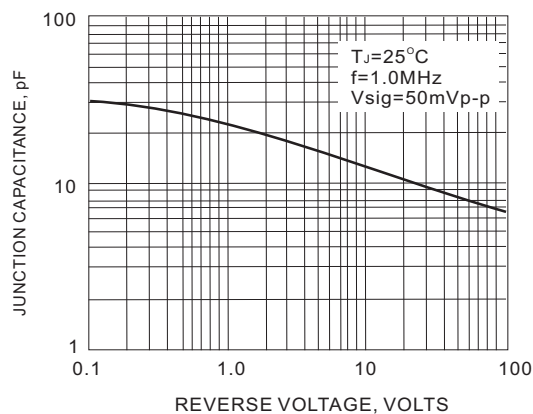
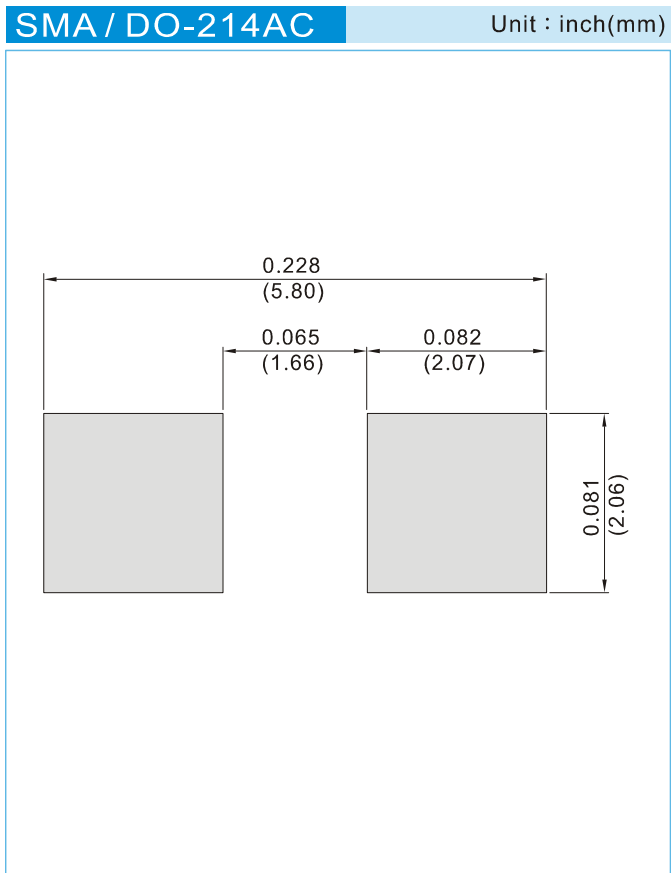


Fig.5 TYPICAL JUNCTION CAPACITANCE

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### MOUNTING PAD LAYOUT



### ORDER INFORMATION

- Packing information
  - T/R - 7.5K per 13" plastic Reel
  - T/R - 1.8K per 7" plastic Reel

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### Part No\_packing code\_Version

US1A\_R1\_00001

US1A\_R2\_00001

For example :

**RB500V-40\_R2\_00001**

Part No.

Serial number

Version code means HF

Packing size code means 13"

Packing type means T/R

Packing Code <b>XX</b>				Version Code <b>XXXXX</b>		
Packing type	1 <sup>st</sup> Code	Packing size code	2 <sup>nd</sup> Code	HF or RoHS	1 <sup>st</sup> Code	2 <sup>nd</sup> ~5 <sup>th</sup> Code
Tape and Ammunition Box (T/B)	<b>A</b>	N/A	<b>0</b>	<b>HF</b>	<b>0</b>	serial number
Tape and Reel (T/R)	<b>R</b>	7"	<b>1</b>	<b>RoHS</b>	<b>1</b>	serial number
Bulk Packing (B/P)	<b>B</b>	13"	<b>2</b>			
Tube Packing (T/P)	<b>T</b>	26mm	<b>X</b>			
Tape and Reel (Right Oriented) (TRR)	<b>S</b>	52mm	<b>Y</b>			
Tape and Reel (Left Oriented) (TRL)	<b>L</b>	PANASERT T/B CATHODE UP (PBCU)	<b>U</b>			
FORMING	<b>F</b>	PANASERT T/B CATHODE DOWN (PBCD)	<b>D</b>			



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