



Micro Commercial Components

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# US1A THRU US1M

## Features

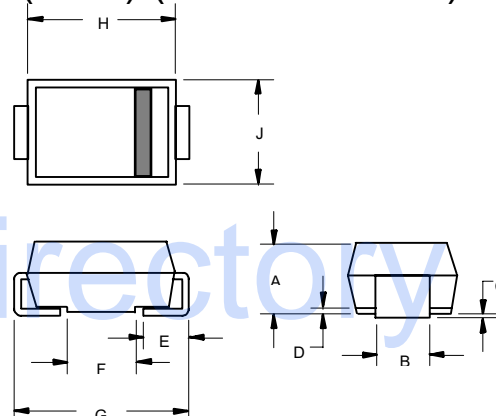
- Glass Passivated Chip
- Ultra Fast Switching For High Efficiency
- For Surface Mounted Applications
- Low Forward Voltage Drop And High Current Capability
- Low Reverse Leakage Current
- Case Material: Molded Plastic. UL Flammability Classification Rating 94V-0

## 1 Amp Ultra Fast Rectifier 50 to 1000 Volts

## Maximum Ratings

- Operating Temperature: -50°C to +150°C
- Storage Temperature: -50°C to +150°C
- Maximum Thermal Resistance; 30°C/W Junction To Lead

## DO-214AC (SMA) (LEAD FRAME)



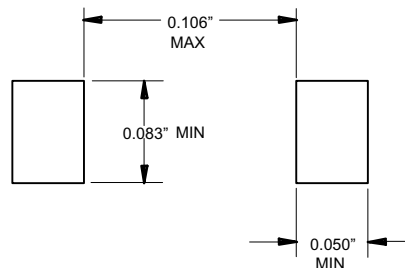
MCC Catalog Number	Device Marking	Maximum Recurrent Peak Reverse Voltage	Maximum RMS Voltage	Maximum DC Blocking Voltage
US1A	US1A	50V	35V	50V
US1B	US1B	100V	70V	100V
US1C	US1C	150V	105V	150V
US1D	US1D	200V	140V	200V
US1G	US1G	400V	280V	400V
US1J	US1J	600V	420V	600V
US1K	US1K	800V	560V	800V
US1M	US1M	1000V	700V	1000V

DIM	Dimensions				NOTE
	INCHES		MM		
A	.079	.096	2.00	2.44	
B	.050	.064	1.27	1.63	
C	.002	.008	.05	.20	
D	---	.02	---	.51	
E	.030	.060	.76	1.52	
F	.065	.091	1.65	2.32	
G	.189	.220	4.80	5.59	
H	.157	.181	4.00	4.60	
J	.090	.115	2.25	2.92	

## Electrical Characteristics @ 25°C Unless Otherwise Specified

Average Forward Current	$I_{F(AV)}$	1.0A	$T_L = 75^\circ\text{C}$
Peak Forward Surge Current	$I_{FSM}$	30A	8.3ms, half sine
Maximum Instantaneous Forward Voltage US1A-1D US1G US1J-1M	$V_F$	1.0V 1.4V 1.7V	$I_{FM} = 1.0A$ ; $T_J = 25^\circ\text{C}$
Maximum DC Reverse Current At Rated DC Blocking Voltage	$I_R$	10uA 100uA	$T_A = 25^\circ\text{C}$ $T_A = 100^\circ\text{C}$
Maximum Reverse Recovery Time US1A-1G US1J-1M	$T_{rr}$	50ns 100ns	$I_F=0.5A, I_R=1.0A,$ $I_{rr}=0.25A$
Typical Junction Capacitance US1A-1G US1J-1M	$C_J$	20pF 17pF	Measured at 1.0MHz, $V_R=4.0V$

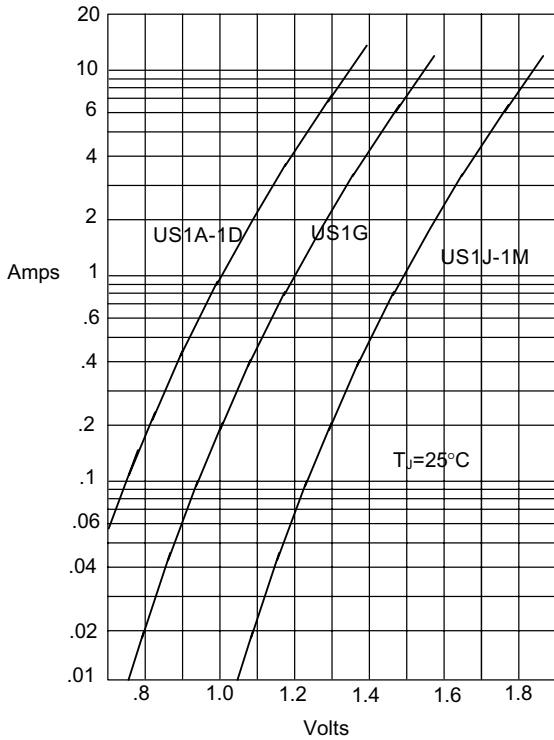
### SUGGESTED SOLDER PAD LAYOUT



\*Pulse test: Pulse width 300 sec, Duty cycle 1%

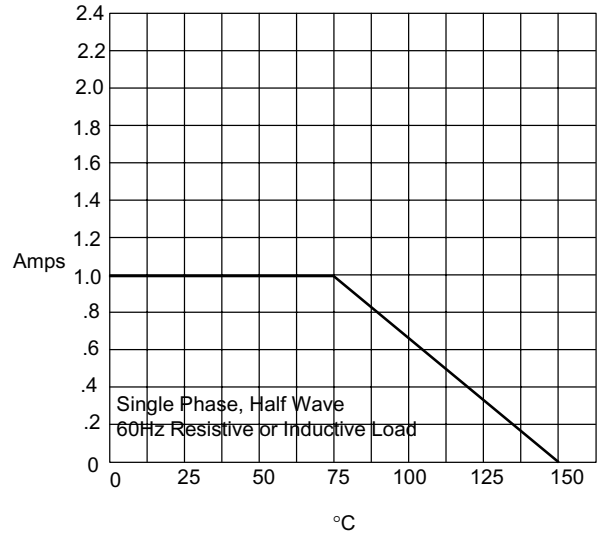
# US1A thru US1M

Figure 1  
Typical Forward Characteristics



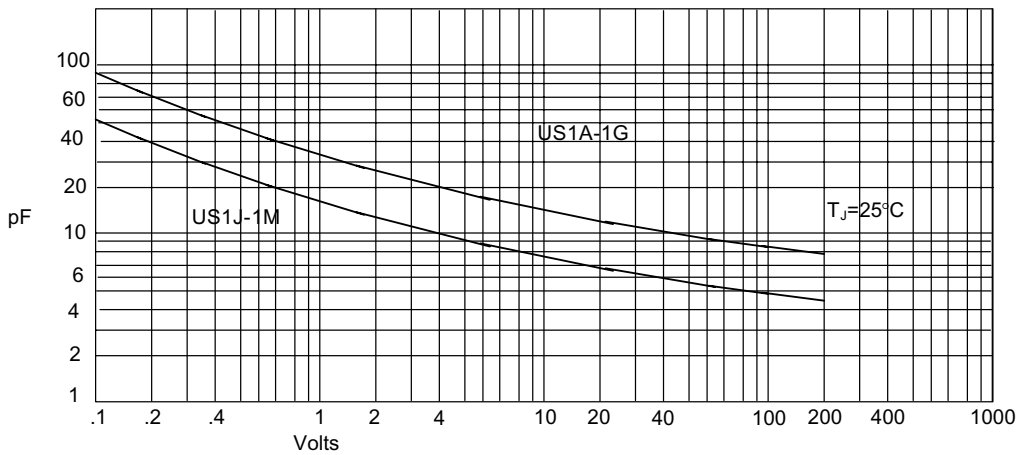
Instantaneous Forward Current - Amperes versus  
Instantaneous Forward Voltage - Volts

Figure 2  
Forward Derating Curve



Average Forward Rectified Current - Amperes versus  
Lead Temperature -  $^\circ\text{C}$

Figure 3  
Junction Capacitance

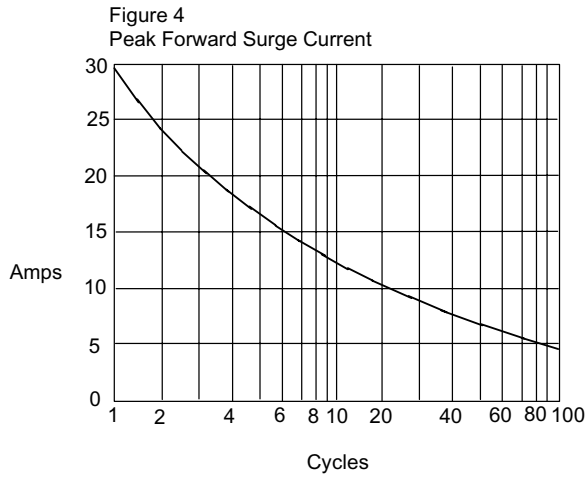


Junction Capacitance - pF versus  
Reverse Voltage - Volts

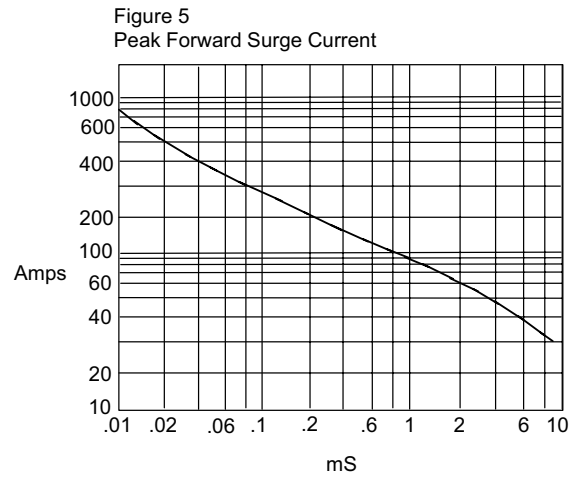
# US1A thru US1M



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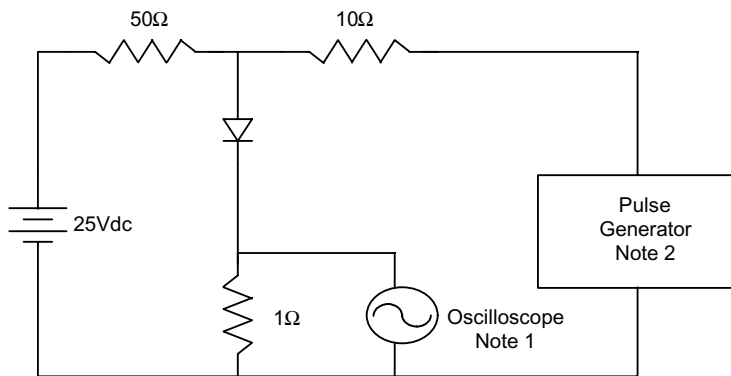


Peak Forward Surge Current - Amperes versus Number Of Cycles At 60Hz - Cycles

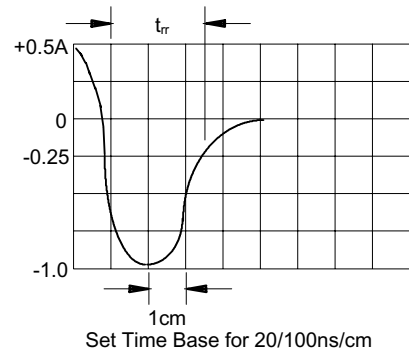


Peak Forward Surge Current - Amperes versus Pulse Duration - Milliseconds (mS)

Figure 6  
Reverse Recovery Time Characteristic And Test Circuit Diagram



- Notes:
1. Rise Time = 7ns max.  
Input impedance = 1 megohm, 22pF
  2. Rise Time = 10ns max.  
Source impedance = 50 ohms
  3. Resistors are non-inductive





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