

# US1AFL THRU US1MFL

## 1 Amp Ultra Fast Rectifier 50 to 1000 Volts

### Features

- Halogen free available upon request by adding suffix "-HF"
- Lead Free Finish/RoHS Compliant(Note 1) ("P" Suffix designates RoHS Compliant. See ordering information)
- 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
- Epoxy meets UL 94 V-0 flammability rating
- Moisture Sensitivity Level 1

### Maximum Ratings

- Operating Temperature: -65°C to +150°C
- Storage Temperature: -65°C to +150°C
- Maximum Thermal Resistance: 30 °C/W Junction To Lead

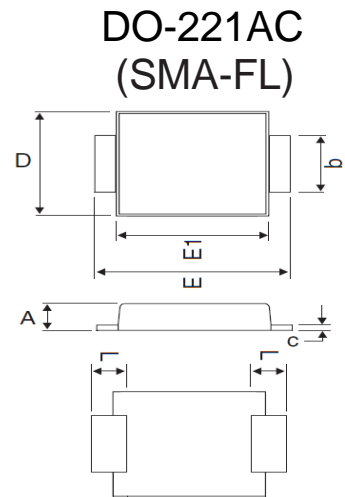
MCC Catalog Number	Device Marking	Maximum Recurrent Peak Reverse Voltage	Maximum RMS Voltage	Maximum DC Blocking Voltage
US1AFL	US1A	50V	35V	50V
US1BFL	US1B	100V	70V	100V
US1CFL	US1C	150V	105V	150V
US1DFL	US1D	200V	140V	200V
US1GFL	US1G	400V	280V	400V
US1JFL	US1J	600V	420V	600V
US1KFL	US1K	800V	560V	800V
US1MFL	US1M	1000V	700V	1000V

### Electrical Characteristics @ 25°C Unless Otherwise Specified

Average Forward Current	$I_{F(AV)}$	1.0A	$T_L = 110^\circ\text{C}$
Peak Forward Surge Current	$I_{FSM}$	30A	8.3ms, half sine
Maximum Instantaneous Forward Voltage US1AFL-1DFL US1GFL US1JFL-1MFL	$V_F$	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	$I_R$	10µA 100µA	$T_A = 25^\circ\text{C}$ $T_A = 100^\circ\text{C}$
Maximum Reverse Recovery Time US1AFL-US1GFL US1JFL-US1MFL	$T_{rr}$	50ns 75ns	$I_F=0.5A, I_R=1.0A,$ $I_{rr}=0.25A$
Typical Junction Capacitance US1AFL-1GFL US1JFL-1MFL	$C_J$	20pF 17pF	Measured at 1.0MHz, $V_R=4.0V$

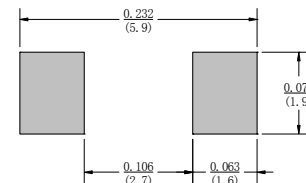
\*Pulse test: Pulse width 300 sec, Duty cycle 1%

Notes: 1. High Temperature Solder Exemption Applied, see EU Directive Annex Notes 7.



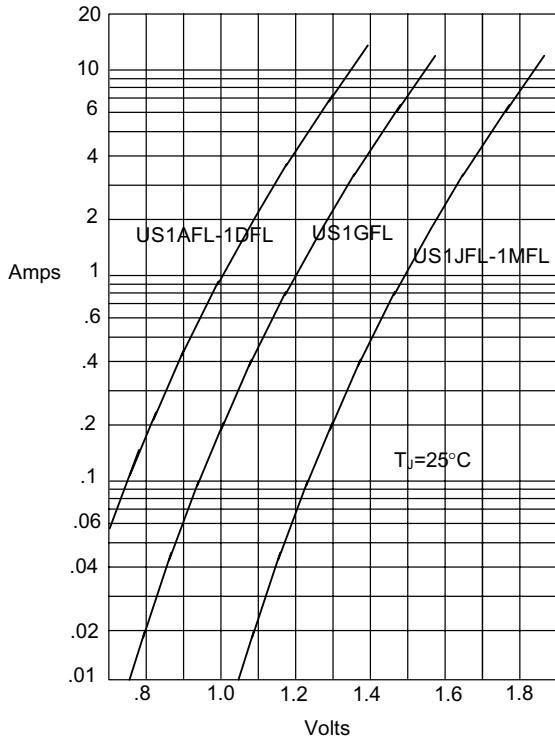
DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	.035	.047	0.90	1.20	
b	.049	.065	1.25	1.65	
C	.004	.016	0.10	0.40	
D	.089	.116	2.25	2.95	
E	.173	.220	4.40	5.60	
E1	.126	.181	3.20	4.60	
L	.028	.059	0.70	1.50	

### SUGGESTED SOLDER PAD LAYOUT



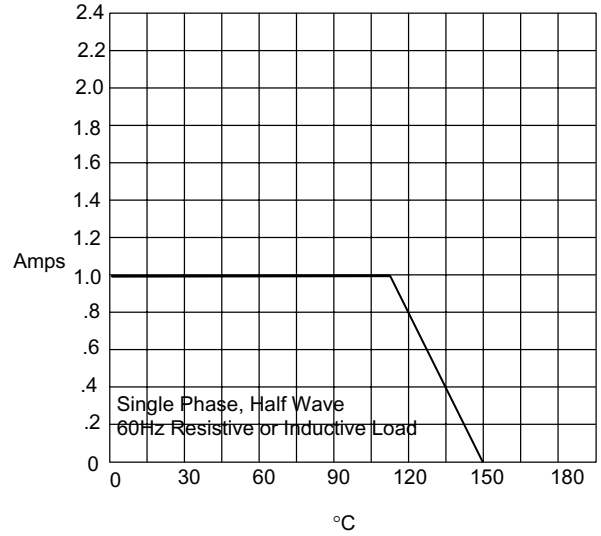
# US1AFL thru US1MFL

Figure 1  
Typical Forward Characteristics



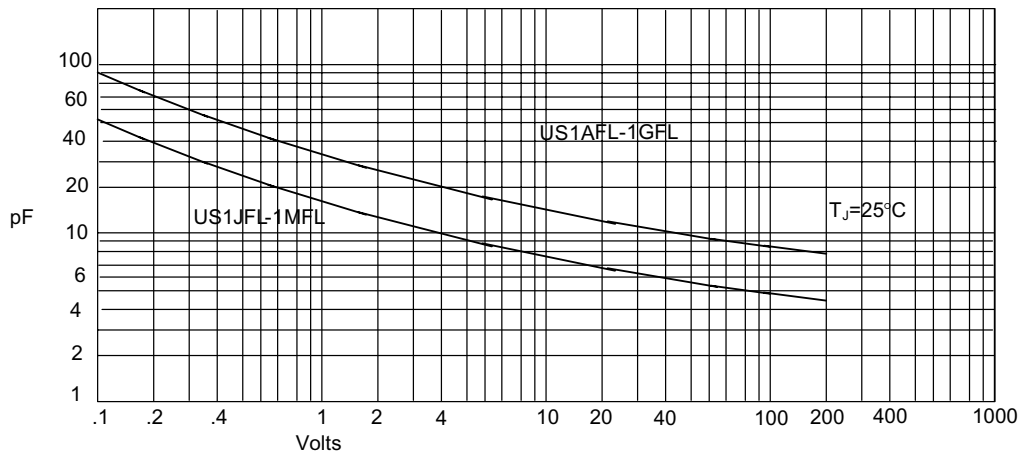
Instantaneous Forward Current - Amperes versus  
Instantaneous Forward Voltage - Volts

Figure 2  
Forward Derating Curve



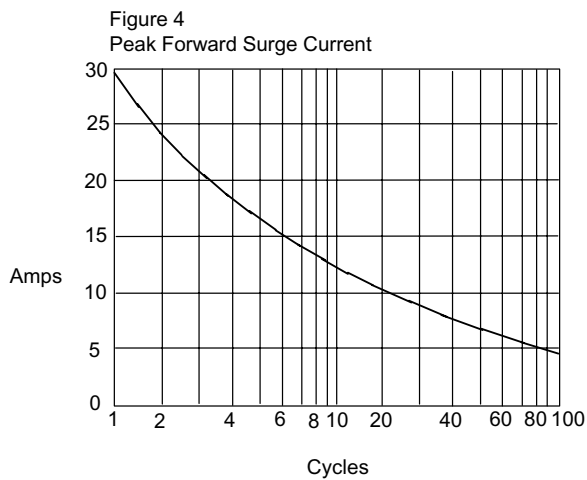
Average Forward Rectified Current - Amperes versus  
Lead Temperature -  $^\circ\text{C}$

Figure 3  
Junction Capacitance

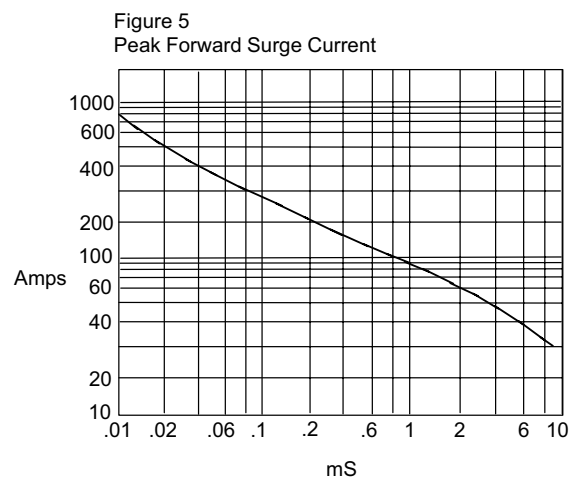


Junction Capacitance - pF versus  
Reverse Voltage - Volts

# US1AFL thru US1MFL

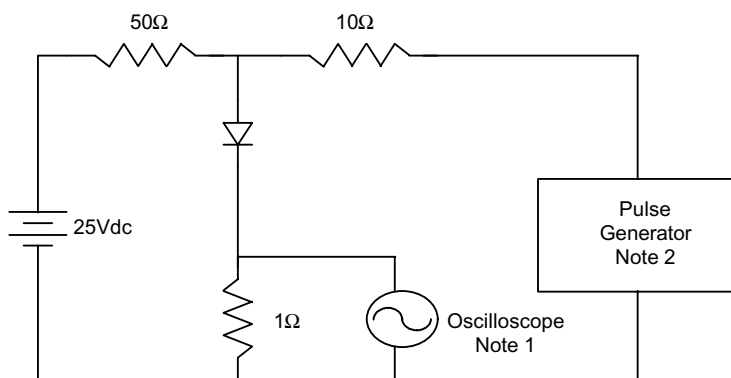


Peak Forward Surge Current - Amperes versus  
Number Of Cycles At 60Hz - Cycles

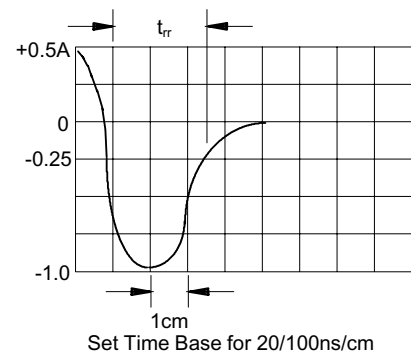


Peak Forward Surge Current - Amperes versus  
Pulse Duration - Milliseconds (mS)

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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**Ordering Information :**

Device	Packing
Part Number-TP	Tape&Reel: 10Kpcs/Reel

Note : Adding "-HF" suffix for halogen free, eg. Part Number-TP-HF

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