

# POWER SCHOTTKY RECTIFIERS

## 12A Pk, up to 50V

USD635  
USD640  
USD645  
USD650

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### FEATURES

- Vary Low Forward Voltage
- Reverse Transient Capability
- Economical Convenient Plastic Package
- Mechanically Rugged
- 50V Working Voltage @ Rated  $T_{jmax}$

### DESCRIPTION

The USD600 series of Schottky power rectifiers is ideally suited for output rectifiers and catch diodes in high frequency low voltage power supplies.

### ABSOLUTE MAXIMUM RATINGS

	USD635	USD640	USD645	USD650
Working Peak Reverse Voltage, $V_{RWM}$	35V	40V	45V	50V
DC Blocking Voltage, $V_R$	35V	40V	45V	50V
Peak Repetitive Surge Voltage, $V_{RSM}$ @ $I_{RSM}$	42V	48V	54V	60V
Average Rectified Forward Current @ $T_C = 115^\circ\text{C}$ , $I_F (AV)$	6A			
Peak Repetitive Forward Current (Rated $V_R$ , Square Wave, 20 KHz, 50% Duty Cycle, @ $T_C = 115^\circ\text{C}$ ), $I_{FRM}$	12A			
Non-repetitive Peak Surge Current (8.3ms), $I_{FSM}$	150A			
Peak Reverse Transient Current, $I_{RM}$	1A			
Operating Junction Temperature, $T_J$	150°C			
Storage Temperature Range, $T_{Stg}$	-55°C to +150°C			
Thermal Resistance, Junction to Case, $R_{\theta JC}$	3.0°C/W			

### ELECTRICAL CHARACTERISTICS ( $T_{CASE} = 25^\circ\text{C}$ )

CHARACTERISTIC	SYMBOL	LIMIT	UNITS	CONDITIONS
Maximum Instantaneous Reverse Current	$i_R$	5	mA	$V_R = V_{RWM}$ Pulse Width = 400 $\mu\text{s}$ Duty Cycle = 1 percent
Maximum Instantaneous Reverse Current	$i_R$	50	mA	$V_R = V_{RWM}$ Pulse Width = 400 $\mu\text{s}$ Duty Cycle = 1 percent $T_C = 125^\circ\text{C}$
Maximum Instantaneous Forward Voltage	$V_F$	0.55	V	$i_F = 6A$ $i_F = 12A$
		0.65	V	
		0.48	V	$i_F = 6A$ $i_F = 12A$ } $T_C = 125^\circ\text{C}$
		0.60	V	
Capacitance	$C_t$	1000	pF	$V_R = 5V$
Voltage Rate of Change	$dv/dt$	1000	V/ $\mu\text{s}$	$V_R = V_{RWM}$

### MECHANICAL SPECIFICATIONS

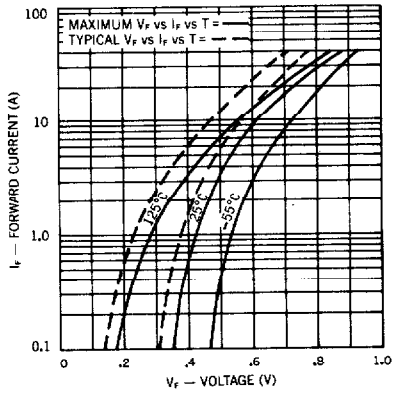
**USD600 SERIES**

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	14.23	15.87	0.560	0.625
B	9.66	10.66	0.380	0.420
C	3.56	4.82	0.140	0.190
D	0.51	1.14	0.020	0.045
F	3.531	3.733	0.139	0.147
G	2.29	2.79	0.090	0.110
H	—	6.35	—	0.250
J	0.38	0.64	0.015	0.025
K	12.70	14.27	0.500	0.562
L	1.14	1.77	0.045	0.070
N	4.83	5.33	0.190	0.210
Q	2.54	3.04	0.100	0.120
R	2.04	2.92	0.080	0.115
S	1.14	1.39	0.045	0.055
T	5.85	6.85	0.230	0.270

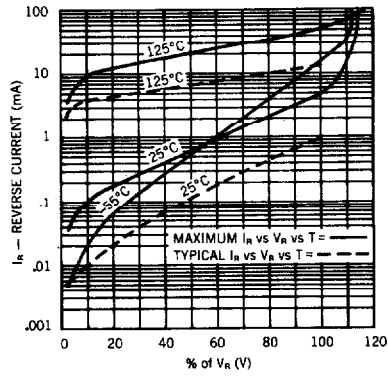
**TO-220AC**

**Microsemi Corp.**  
**Watertown**  
The diode experts

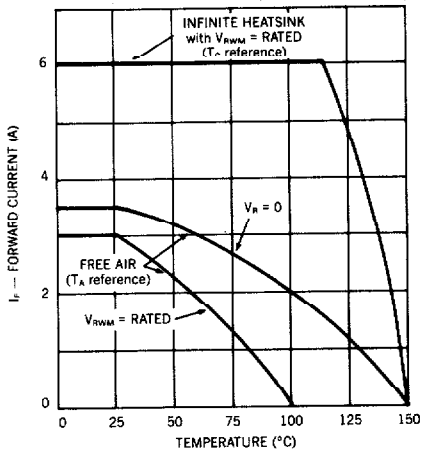
**Forward Current vs. Forward Voltage**



**Reverse Current vs. Voltage**



**Average Forward Current vs. Temperature**



**$V_R$  Rating vs. Temperature**

