

DUAL POWER SCHOTTKY RECTIFIERS

12A Av, up to 50V

USD635C
USD640C
USD645C
USD650C

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FEATURES

- Very Low Forward Voltage
- Reverse Transient Capability
- Economical Convenient Plastic Package
- Mechanically Rugged
- 50V Working Voltage @ Rated $T_{J(\text{MAX})}$

DESCRIPTION

The USD600C series of power Schottky rectifiers, in the industry standard TO-220 package, is specifically designed for operation in power switching circuits to frequencies in excess of 100 KHz. The series combines Schottky rectifiers in one convenient package; thus, simplifying installation, reducing heatsink requirements and component parts count.

ABSOLUTE MAXIMUM RATINGS (Per Diode Unless Otherwise Noted)

	USD635C	USD640C	USD645C	USD650C
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_o^*			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	

*Full Wave Center-Tap; I_o (AV) 20 KHz Square Wave

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

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

MECHANICAL SPECIFICATIONS

SEATING PLANE

Pin 1

Pin 2 & Tab

Pin 3

USD600C 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
E	3.52	3.73	0.139	0.147
F	2.29	2.79	0.090	0.110
G	—	6.35	—	0.250
H	0.38	0.64	0.015	0.025
I	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-220AB

Microsemi Corp.
Watertown
The diode experts

