

DUAL POWER SCHOTTKY RECTIFIERS

60A Pk, 45V

USD335C
USD345C
USD335CHR2
USD345CHR2

2

FEATURES

- Very Low Forward Voltage
- Low Recovered Charge
- Rugged Package Design (TO-3)
- High Efficiency for Low Voltage Supplies
- 45V Blocking @ Rated T_{jmax}
- 50V Repetitive Surge Voltage
- Dual Schottky Rectifier in a Single Package

DESCRIPTION

The USD320C series has two Schottky barriers arranged in a common cathode configuration and is ideally suited for a full wave output rectifier in low voltage switching power supplies.

ABSOLUTE MAXIMUM RATINGS (Total for USD300C Series)

Average Rectified Forward Current, I_O @ $T_C = 100^\circ\text{C}$

30A

ABSOLUTE MAXIMUM RATINGS (Per Diode)

Working Peak Reverse Voltage V_{RWM} 35V 45V
DC Blocking Voltage, V_R 35V 45V
Peak Repetitive Surge Voltage, V_{RSM} @ I_{RM} 42V 54V
Average Rectified Forward Current, I_O 30A in full wave configuration*
Non-repetitive Peak

Surge current (8.3 ms), I_{FSM} 500A

Peak Reverse Transient Current, I_{RM} 2A

Storage Temperature Range, T_{stg} -55°C to $+200^\circ\text{C}$.

Peak Operating Junction Temperature, T_{jmax} 175°C

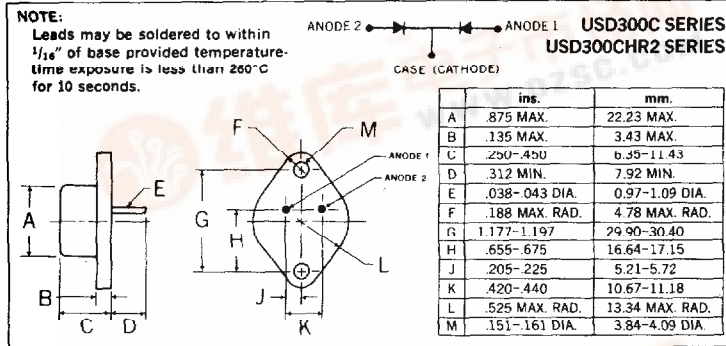
Thermal Resistance, Junction to Case, $R_{\theta JC}$ 1.4°C/W

* Each Anode Pin Limited to 18A Average.
Package Capability 30A Average.

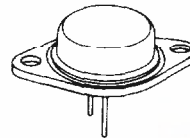
ELECTRICAL CHARACTERISTICS ($T_{CASE} = 25^\circ\text{C}$)

Characteristic	Symbol	Limit	Units	Conditions
Maximum Instantaneous Reverse Current	i_R	10 50	mA mA	$T_C = 25^\circ\text{C}$, $V_R = V_{RWM}$ $T_C = 125^\circ\text{C}$ Pulse Width = $400\mu\text{s}$ Duty Cycle = 1 percent
Maximum Instantaneous Forward Voltage	V_F	0.57 0.66 0.60	V V V	$i_F = 10\text{A}$, $T_C = 25^\circ\text{C}$ $i_F = 20\text{A}$, $T_C = 25^\circ\text{C}$ $i_F = 20\text{A}$, $T_C = 125^\circ\text{C}$ Pulse Width = $300\mu\text{s}$ Duty Cycle = 1 percent
Capacitance	C_t	2000	pF	$V_R = 5.0\text{V}$
Voltage Rate of Change	dv/dt	1000	v/ μs	$V_R = V_{RWM}$

MECHANICAL SPECIFICATIONS



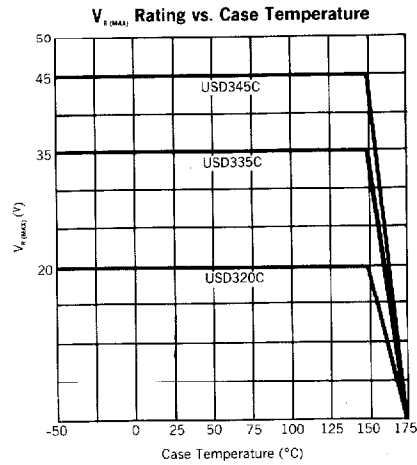
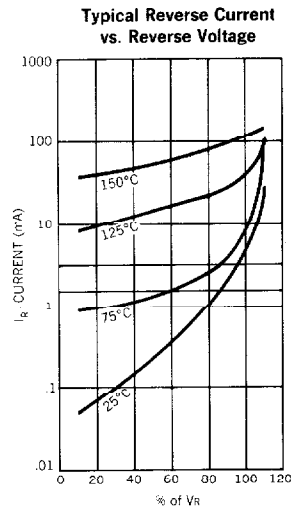
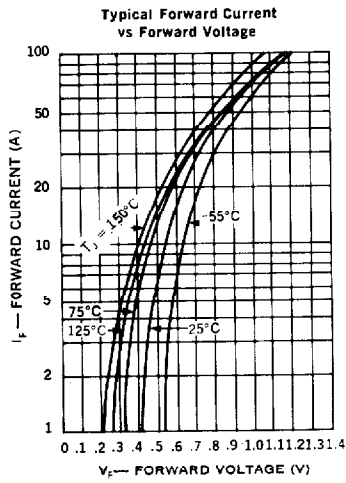
TO-204AA (TO-3)



Notes: All metal surfaces tin plated.

Microsemi Corp.
Watertown
The diode experts

USD335C USD345C
USD335CHR2 USD345CHR2



OPTIONAL HIGH RELIABILITY (HR2) SCREENING

The following tests are performed on 100% of the devices specified USD335CHR2, 345CHR2.

SCREEN	MIL-STD-750 METHOD	CONDITIONS
1. High Temperature	1032	24 Hours @ $T_A = 150^\circ\text{C}$
2. Temperature Cycle	1051	F, 20 Cycles, -55 to $+150^\circ\text{C}$. No dwell required @ 25°C , $t \geq 10$ min. @ extremes
3. Hermetic Seal a. Fine Leak b. Gross Leak	1071	H, Helium C, Liquid
4. Thermal Impedance		Sage Test
5. Interim Electrical Parameters	GO/NO GO	V_F and I_R @ 25°C
6. High Temperature Reverse Blocking	Similar to Method 1040	$\frac{1}{2}$ Sine Reverse, $t = 48$ Hours, $T_C = 125^\circ\text{C}$, $VRW_M = \text{rating}$, $F = 50-60$ Hz, $I_O = 0A$
7. Final Electrical Parameters	GO/NO GO	$V_F + I_R$ @ 25°C PDA = 10% (Final Electricals)