HERMETIC SCHOTTKY RECTIFIERS

6 Amp, 45 Volts

USD245C
USD245CHR2
USD245CR
USD245CRHR2

FEATURES

- MIL-S-19500 Type Screening Available
- Extremely Low V_F and I_R
- High Surge Capability
- Low Recovered Charge
- Rugged Hermetic Package, No Pressure Contacts
- Dual Rectifier in One Package
- Available in Reverse Polarity (CR)

DESCRIPTION

The USD245C series hermetic Schottky rectifier is ideally suited for output rectifiers and PWM protection in high efficiency, low voltage, high reliability switching power supplies. The series combines Schottky rectifiers in one convenient package; thus simplifying installation and reducing component parts count.

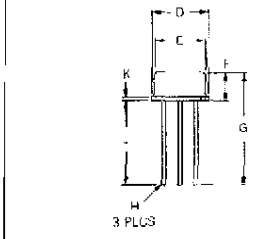
ABSOLUTE MAXIMUM RATINGS (Either leg, unless noted.)

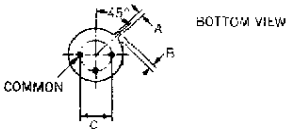
Peak Repetitive Reverse Voltage, V_{RRM} 45V
Working Peak Reverse Voltage, V_{RWM} 45V
DC Blocking Voltage, V_R 45V
Non-Repetitive Peak Reverse Voltage, V_{RSM} 54V
Average Forward Current (50% Duty Cycle), $I_{F(AV)}$, Full Wave Configuration 6A
Either Leg Alone 4A
T_{CASE} = 100°C
V_{RWM} = 45V
Average Forward Current (50% Duty Cycle), $I_{F(AV)}$ (Note 1), Either Leg Alone 2A
$R_{\theta C-A}$ = 68°C/W, I_A = 25°C
V_{RWM} = 45V
Non-Repetitive Peak Surge Current, I_{FSM} 80A
8.3ms, Half Sine Wave
Operating and Storage Junction Temperature Range, T_{OP}, T_{STA} ..... −65°C to +175°C
Thermal Resistance, Junction to Ambient, $R_{\theta J-A}$ ..... 175°C/W
Thermal Resistance, Junction to Case, $R_{\theta J-C}$ ..... 15°C/W

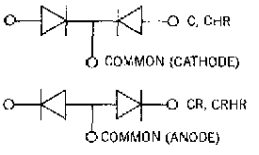
Note: 1. Using Wakefield Type 205 heatsink with convection cooling.
For more definitive data refer to the Output vs Temperature curves on this data sheet.

MECHANICAL SPECIFICATIONS

USD245C SERIES



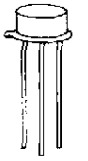




	MILLIMETERS	INCHES
A	0.72-0.86	0.028-0.034
B	0.88	0.035
C	5.08	0.20
D	9.14 DIA.	0.36 DIA.
E	8.25 DIA.	0.325 DIA.
F	4.30-4.57	0.169-0.180
G	18.03 REF.	0.71 REF.
H	0.41-0.53 DIA.	0.016-0.021 DIA.
J	12.70-14.22	0.50-0.56
K	0.36-0.45	0.014-0.018

All Dimensions in Inches and Millimeters

TO-205AF (TO-39)



Microsemi Corp.
Watertown
The diode experts

ELECTRICAL CHARACTERISTICS PER LEG (T_j = 25°C)

CHARACTERISTICS	SYMBOL	LIMIT	UNITS	CONDITIONS
Maximum Instantaneous Reverse Current	i_R	2	mA	V_R = 45V Pulse Width 400μs Duty Cycle = 1%
Maximum Instantaneous Reverse Current	i_R	20	mA	V_R = 45V Pulse Width = 400μs Duty Cycle = 1% T_C = 125°C
Maximum Instantaneous Forward Voltage (Note 1)	V_F	0.48 0.56 0.68	V	i_F = 1A i_F = 2A i_F = 4A Pulse Width = 400μs Duty Cycle = 1%
		0.45		i_F = 2A T_j = 125°C
Capacitance	C_T	450	pF	V_R = 5V
Voltage Rate of Change	dv/dt	1000	V/μs	V_R = 45V

Note: 1. Measured with anode and cathode lead length of 0.2" from case.

OPTIONAL HIGH RELIABILITY (HR2) SCREENING

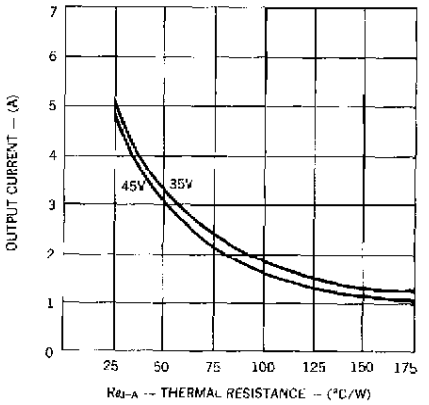
The following tests are performed on 100% of the devices specified USD245CHR2 and USD245CRHR2.

SCREEN	MIL-STD-750 METHOD	CONDITIONS
1. High Temperature	1032	24 Hours @ T_A = 150°C
2. Temperature Cycle	1051	F, 20 Cycles, −55 to +150°C. No dwell required @ 25°C, t ≥ 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	½ Sine Reverse, t = 48 Hours, T_C = 125°C, VRW_M = 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)

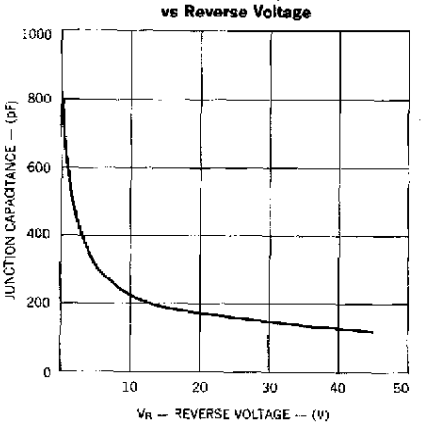
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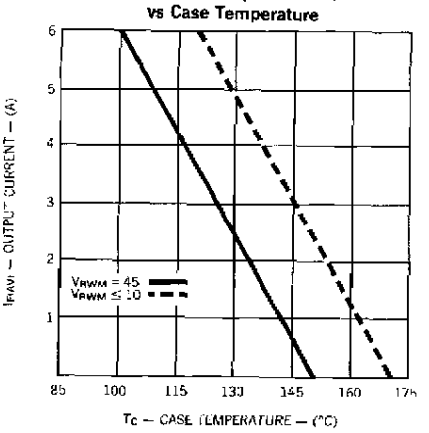
Output Current vs $R_{\theta J\text{-}A}$
$T_{ambient}$ = 25°C, 50% Duty Cycle



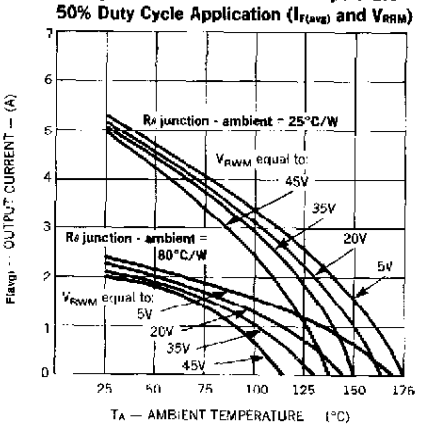
Typical Junction Capacitance vs Reverse Voltage



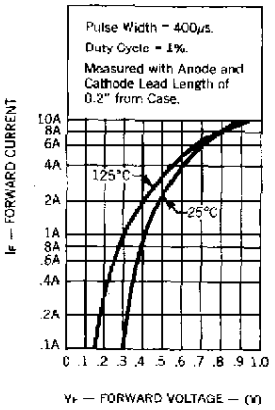
Full-Wave Output Current vs Case Temperature



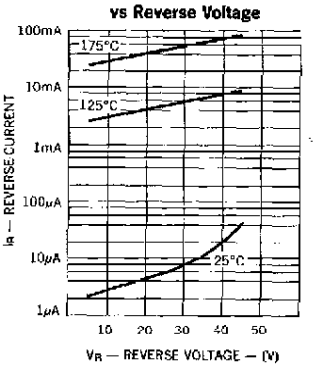
Output Current vs Ambient Temperature
50% Duty Cycle Application ($I_{F(av)}$ and V_{RRM})



Typical Forward Current vs Forward Voltage



Typical Reverse Current vs Reverse Voltage



NOTE: All curves, except Full-Wave Output Current, apply to either leg.

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