

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
$T_{CASE} = 100^\circ C$	
$V_{RWM} = 45V$	
Average Forward Current (50% Duty Cycle), $I_{F(AV)}$ (Note 1), Either Leg Alone	2A
$R_{\theta C-A} = 68^\circ C/W$, $I_A = 25^\circ C$	
$V_{RWM} = 45V$	
Non-Repetitive Peak Surge Current, I_{FSM}	80A
8.3ms, Half Sine Wave	
Operating and Storage Junction Temperature Range, T_{OP} , T_{STA}	$-65^\circ C$ to $+175^\circ C$
Thermal Resistance, Junction to Ambient, $R_{\theta J-A}$	$175^\circ C/W$
Thermal Resistance, Junction to Case, $R_{\theta J-C}$	$15^\circ C/W$

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

C, CHR
COMMON (CATHODE)

CR, CRHR
COMMON (ANODE)

	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)

ELECTRICAL CHARACTERISTICS PER LEG ($T_J = 25^\circ\text{C}$)

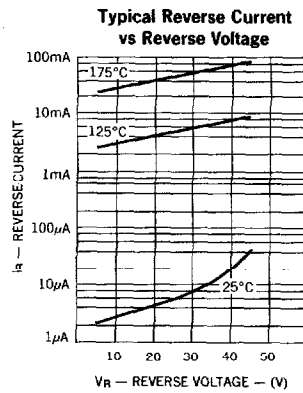
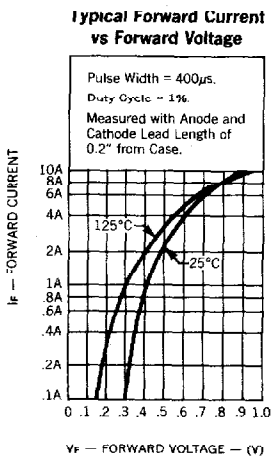
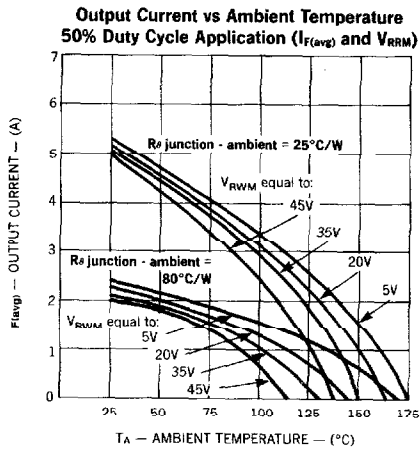
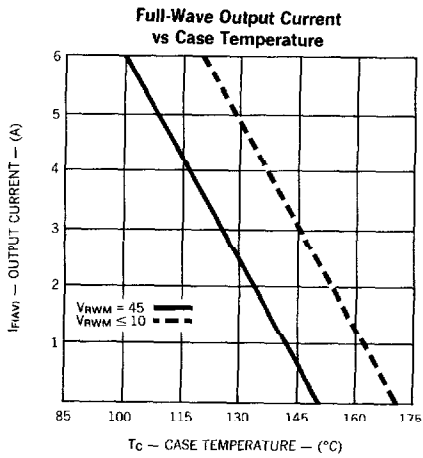
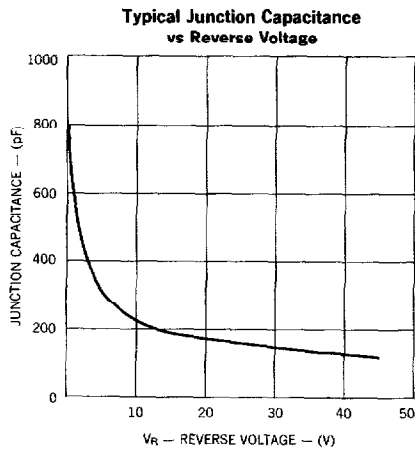
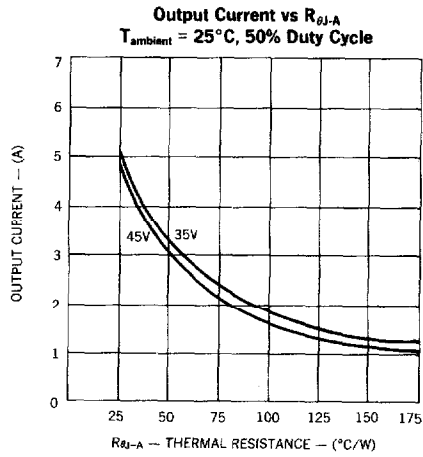
CHARACTERISTICS	SYMBOL	LIMIT	UNITS	CONDITIONS	
Maximum Instantaneous Reverse Current	i_R	2	mA	$V_R = 45\text{V}$ Pulse Width = $400\mu\text{s}$ Duty Cycle = 1%	
Maximum Instantaneous Reverse Current	i_R	20	mA	$V_R = 45\text{V}$ Pulse Width = $400\mu\text{s}$ Duty Cycle = 1% $T_C = 125^\circ\text{C}$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

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 @ $T_A = 150^\circ\text{C}$
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, $I_O = 0\text{A}$
7. Final Electrical Parameters	GO/NO GO	$V_F + I_R$ @ 25°C PDA = 10% (Final Electricals)



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

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