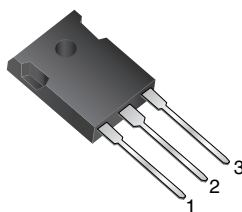




Dual Common-Cathode Schottky Rectifier

High Barrier Technology for Improved High Temperature Performance



TO-247AD (TO-3P)



FEATURES

- Guardring for overvoltage protection
- Lower power losses, high efficiency
- Low forward voltage drop
- High forward surge capability
- High frequency operation
- Solder dip 260 °C, 40 s
- Component in accordance to RoHS 2002/95/EC and WEEE 2002/96/EC

RoHS
COMPLIANT

TYPICAL APPLICATIONS

For use in low voltage, high frequency rectifier of switching mode power supplies, freewheeling diodes, dc-to-dc converters or polarity protection application.

PRIMARY CHARACTERISTICS

$I_{F(AV)}$	40 A
V_{RRM}	35 V to 60 V
I_{FSM}	400 A
V_F	0.55 V, 0.60 V
$T_J \text{ max.}$	175 °C

MECHANICAL DATA

Case: TO-247AD (TO-3P)

Epoxy meets UL 94V-0 flammability rating

Terminals: Matte tin plated leads, solderable per J-STD-002 and JESD22-B102

E3 suffix for consumer grade, meets JESD 201 class 1A whisker test

Polarity: As marked**Mounting Torque:** 10 in-lbs maximum

MAXIMUM RATINGS ($T_A = 25$ °C unless otherwise noted)

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PARAMETER	SYMBOL	MBR40H35PT	MBR40H45PT	MBR40H50PT	MBR40H60PT	UNIT
Maximum repetitive peak reverse voltage	V _{RRM}	35	45	50	60	V
Maximum working peak reverse voltage	V _{RWM}	35	45	50	60	V
Maximum DC blocking voltage	V _{DC}	35	45	50	60	V
Maximum average forward rectified current (Fig. 1)	I _{F(AV)}	40				A
Non-repetitive avalanche energy per diode at 25 °C, I _{AS} = 4 A, L = 10 mH	E _{AS}	80				mJ
Peak forward surge current, 8.3 ms single half sine-wave superimposed on rated load per diode	I _{FSM}	400				A
Peak repetitive reverse surge current per diode ⁽¹⁾	I _{RRM}	2.0		1.0		A
Peak non-repetitive reverse energy (8/20 μs waveform)	E _{RSM}	30		25		mJ
Electrostatic discharge capacitor voltage human body model: C = 100 pF, R = 1.5 kΩ	V _C	25				kV
Voltage rate of change at (rated V _R)	dV/dt	10 000				V/μs
Operating junction temperature range	T _J	- 65 to + 175				°C
Storage temperature range	T _{STG}	- 65 to + 175				°C

Note:(1) 2.0 μ s pulse width, $f = 1.0$ kHz

ELECTRICAL CHARACTERISTICS ($T_C = 25\text{ }^{\circ}\text{C}$ unless otherwise noted)								
PARAMETER	TEST CONDITIONS		SYMBOL	MBR40H35PT MBR40H45PT		MBR40H50PT MBR40H60PT		UNIT
				TYP.	MAX.	TYP.	MAX.	
Maximum instantaneous forward voltage per diode ⁽¹⁾	$I_F = 20\text{ A}$	$T_J = 25\text{ }^{\circ}\text{C}$	V_F	-	0.63	-	0.69	V
	$I_F = 20\text{ A}$	$T_J = 125\text{ }^{\circ}\text{C}$		0.49	0.55	0.56	0.60	
	$I_F = 40\text{ A}$	$T_J = 25\text{ }^{\circ}\text{C}$		-	0.73	-	0.83	
	$I_F = 40\text{ A}$	$T_J = 125\text{ }^{\circ}\text{C}$		0.62	0.66	0.68	0.72	
Maximum reverse current at rated V_R per diode ⁽²⁾		$T_J = 25\text{ }^{\circ}\text{C}$ $T_J = 125\text{ }^{\circ}\text{C}$	I_R	- 9.0	150 25	- 6.0	150 25	μA mA

Notes:

(1) Pulse test: 300 μs pulse width, 1 % duty cycle

(2) Pulse test: Pulse width $\leq 40\text{ ms}$

THERMAL CHARACTERISTICS ($T_A = 25\text{ }^{\circ}\text{C}$ unless otherwise noted)						
PARAMETER	SYMBOL	MBR40H35PT	MBR40H45PT	MBR40H50PT	MBR40H60PT	UNIT
Thermal resistance, junction to case per diode	$R_{\theta JC}$	1.2				$^{\circ}\text{C/W}$

ORDERING INFORMATION (Example)					
PACKAGE	PREFERRED P/N	UNIT WEIGHT (g)	PACKAGE CODE	BASE QUANTITY	DELIVERY MODE
TO-247AD	MBR40H45PT-E3/45	6.13	45	30/tube	Tube

RATINGS AND CHARACTERISTICS CURVES

($T_A = 25\text{ }^{\circ}\text{C}$ unless otherwise noted)

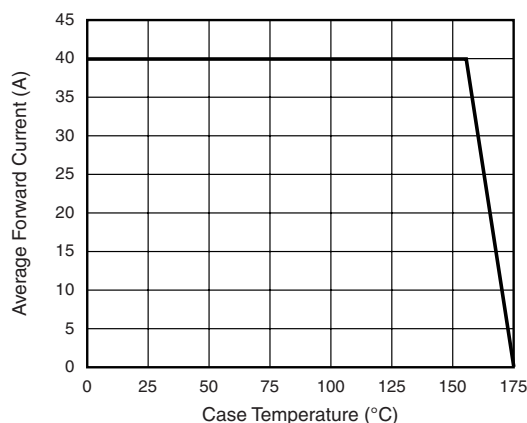


Figure 1. Forward Current Derating Curve

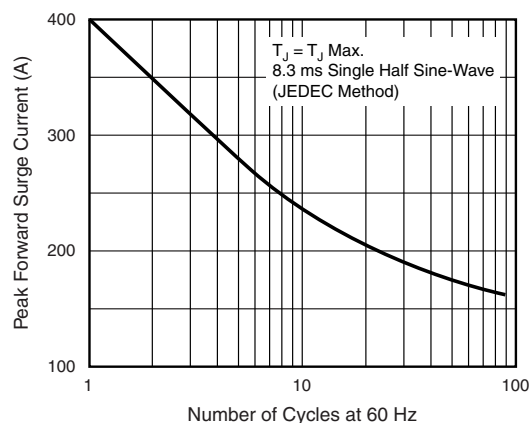


Figure 2. Maximum Non-Repetitive Peak Forward Surge Current Per Diode



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