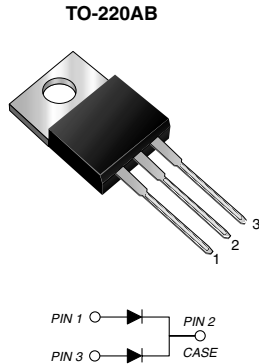


Dual Common-Cathode Schottky Rectifier



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 seconds
- Component in accordance to RoHS 2002/95/EC and WEEE 2002/96/EC



TYPICAL APPLICATIONS

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

MECHANICAL DATA

Case: TO-220AB

Epoxy meets UL 94V-0 flammability rating

Terminals: Matte tin plated leads, solderable per J-STD-002B and JESD22-B102D

E3 suffix for commercial grade

Polarity: As marked

Mounting Torque: 10 in-lbs maximum

PRIMARY CHARACTERISTICS	
$I_{F(AV)}$	15 A x 2
V_{RRM}	40 V
E_{AS}	20 mJ
I_{FSM}	280 A
V_F at $I_F = 15$ A	0.413 V
T_j max.	150 °C

MAXIMUM RATINGS ($T_A = 25$ °C unless otherwise noted)			
PARAMETER	SYMBOL	M30L40C	UNIT
Maximum repetitive peak reverse voltage	V_{RRM}	40	V
Maximum average forward rectified current (see Fig. 1)	$I_{F(AV)}$	30	A
Total device per diode		15	
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load per diode	I_{FSM}	280	A
Peak repetitive reverse current per diode at $t_p = 2$ μ s, 1 kHz	I_{RRM}	1.0	A
Non-repetitive avalanche energy at 25 °C, $I_{AS} = 2$ A, $L = 10$ mH	E_{AS}	20	mJ
Voltage rate of change (rated V_R)	dv/dt	10000	V/ μ s
Operating junction and storage temperature range	T_J, T_{STG}	- 65 to + 150	°C

ELECTRICAL CHARACTERISTICS (T _A = 25 °C unless otherwise noted)						
PARAMETER	TEST CONDITIONS		SYMBOL	TYP.	MAX.	UNIT
Instantaneous forward voltage per diode ⁽¹⁾	at I _F = 8 A I _F = 15 A I _F = 30 A	T _J = 25 °C	V _F	0.430	-	V
		T _J = 125 °C		0.331	-	
Reverse current per diode ⁽¹⁾	at V _R = 40 V	T _J = 25 °C	I _R	88	360	μA
		T _J = 125 °C		12	45	mA
Typical junction capacitance per diode	at 4.0 V, 1 MHz		C _J	750	-	pF

Note:

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

THERMAL CHARACTERISTICS (T _A = 25 °C unless otherwise noted)			
PARAMETER	SYMBOL	M30L40C	UNIT
Typical thermal resistance per diode	R _{θJC}	2.0	°C/W

ORDERING INFORMATION (Example)				
PREFERRED P/N	UNIT WEIGHT (g)	PREFERRED PACKAGE CODE	BASE QUANTITY	DELIVERY MODE
M30L40C-E3/4W	2.068	4W	50/Tube	Tube

RATINGS AND CHARACTERISTICS CURVES

(T_A = 25 °C unless otherwise noted)

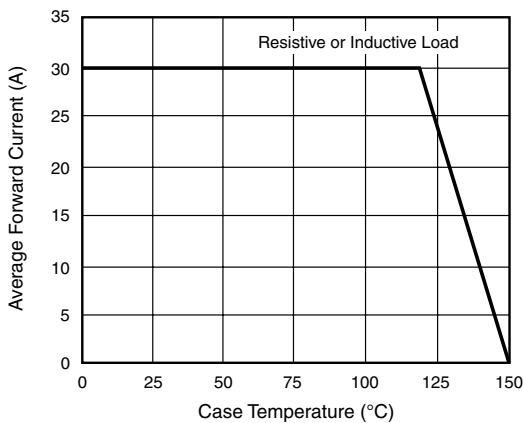


Figure 1. Forward Current Derating Curve

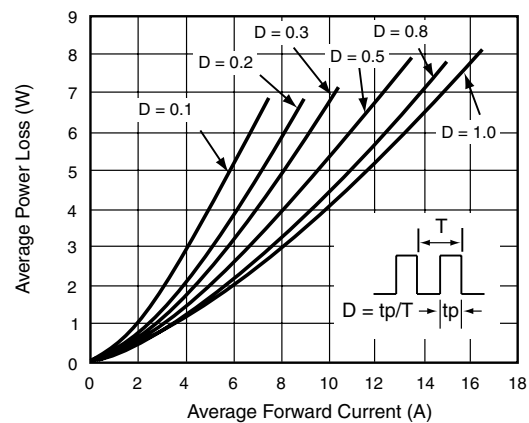


Figure 2. Forward Power Loss Characteristics Per Diode

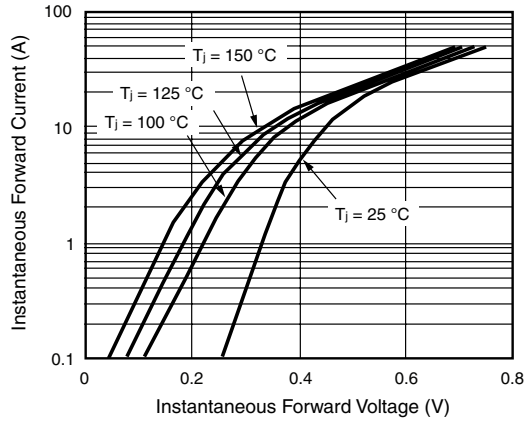


Figure 3. Typical Instantaneous Forward Characteristics Per Diode

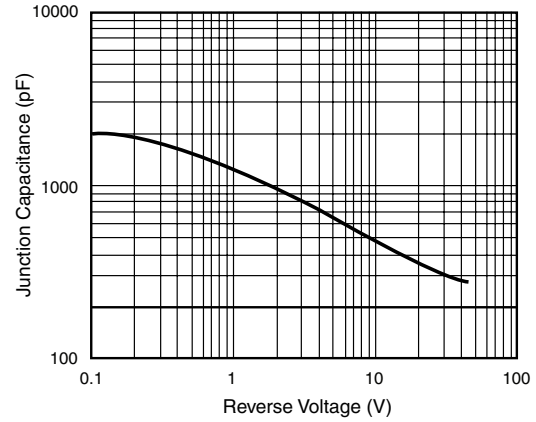


Figure 5. Typical Junction Capacitance Per Diode

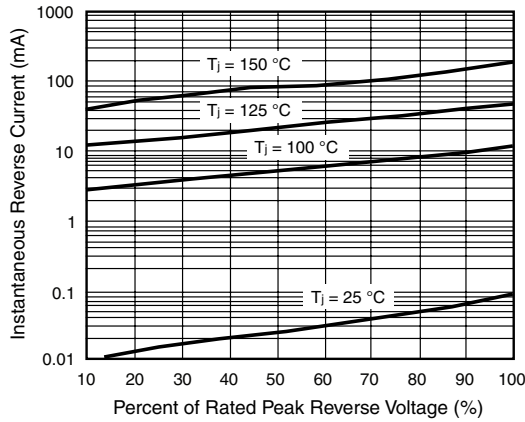


Figure 4. Typical Reverse Characteristics Per Diode

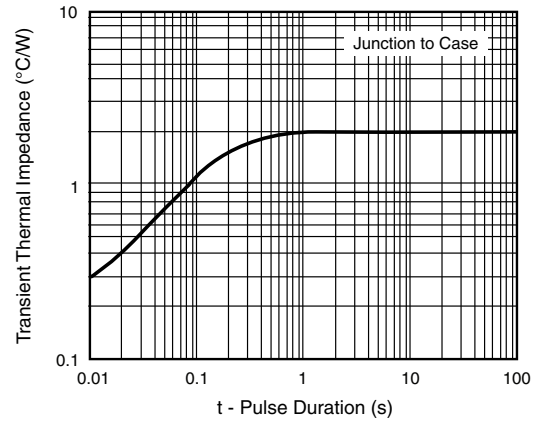
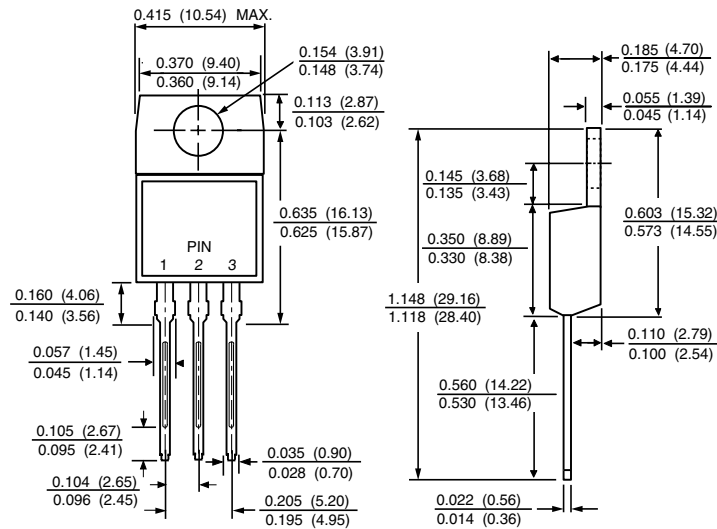


Figure 6. Typical Transient Thermal Impedance Per Diode

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

TO-220AB





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