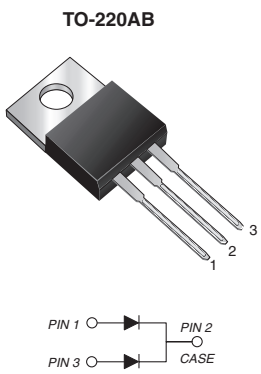
Dual Common-Cathode Schottky Rectifier



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 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 applications.

PRIMARY CHARACTERISTICS	
$I_{F(AV)}$	15 A x 2
V_{RRM}	45 V
E_{AS}	20 mJ
I_{FSM}	280 A
V_F at I_F = 15 A	0.46 V
T_J max.	150 °C

MECHANICAL DATA

Case: TO-220AB

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)

PARAMETER		SYMBOL	M30L45C	UNIT
Maximum repetitive peak reverse voltage		V_{RRM}	45	V
Maximum average forward rectified current (Fig. 1)	total device per diode	$I_{F(AV)}$	30 15	A
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 µs, 1 kHz		I_{RRM}	1.0	A
Non-repetitive avalanche energy at 25 °C, I_{AS} = 2 A	per diode	E_{AS}	20	mJ
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)	I_F = 8 A I_F = 15 A I_F = 30 A	T_A = 25 °C	V_F	0.45 0.52 0.67	- 0.60 -	V
	I_F = 8 A I_F = 15 A I_F = 30 A	T_A = 125 °C		0.36 0.46 0.63	- 0.50 -	
Reverse current per diode (2)	V_R = 45 V	T_A = 25 °C T_A = 125 °C	I_R	210 60	1000 120	µA mA
Typical junction capacitance per diode	4.0 V, 1 MHz		C_J	750	-	pF

Notes:

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

(2) Pulse test: Pulse width ≤ 40 ms

THERMAL CHARACTERISTICS (T_A = 25 °C unless otherwise noted)			
PARAMETER	**SYMBOL**	**M30L45C**	**UNIT**
Typical thermal resistance per diode	$R_{\theta JC}$	2.0	°C/W

ORDERING INFORMATION (Example)				
PREFERRED P/N	**UNIT WEIGHT (g)**	**PREFERRED PACKAGE CODE**	**BASE QUANTITY**	**DELIVERY MODE**
M30L45C-E3/4W	2.07	4W	50/tube	Tube

RATINGS AND CHARACTERISTICS CURVES

(T_A = 25 °C unless otherwise noted)

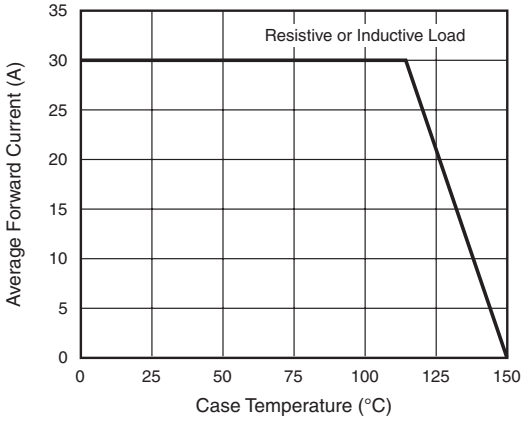


Figure 1. Forward Current Derating Curve

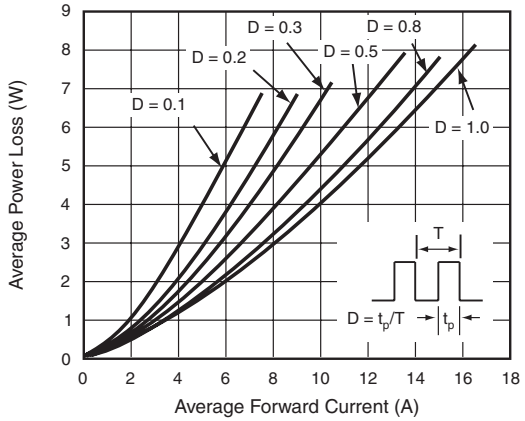


Figure 2. Forward Power Loss Characteristics Per Diode

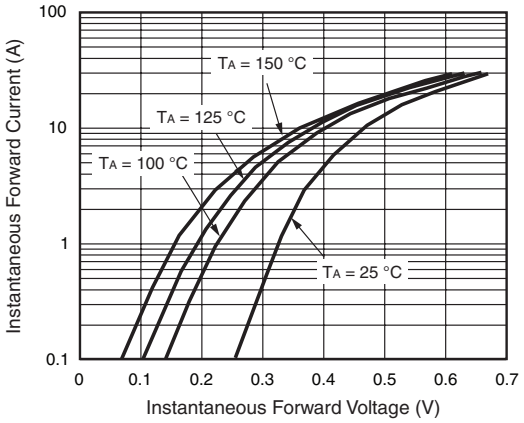


Figure 3. Typical Instantaneous Forward Characteristics Per Diode

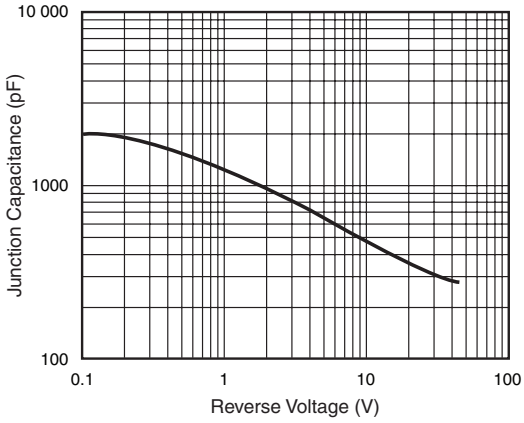


Figure 5. Typical Junction Capacitance Per Diode

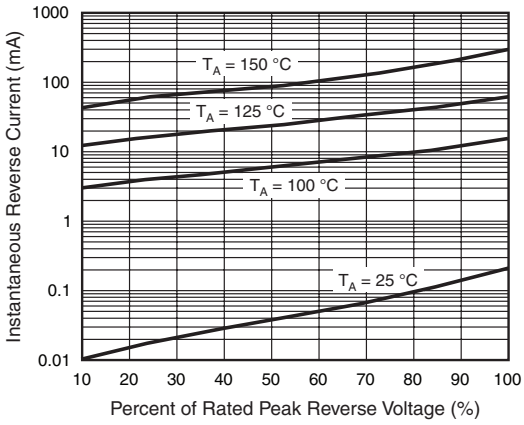


Figure 4. Typical Reverse Characteristics Per Diode

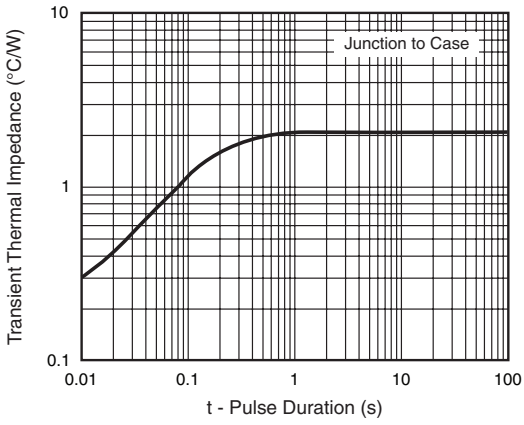
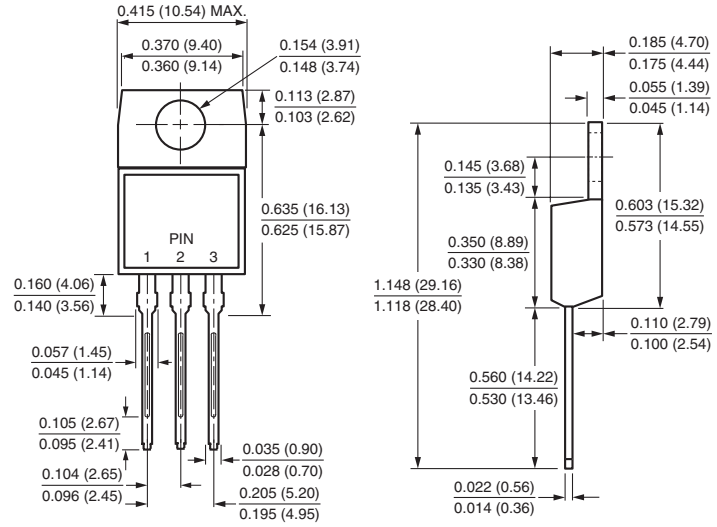


Figure 6. Typical Transient Thermal Impedance Per Diode

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

TO-220AB



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