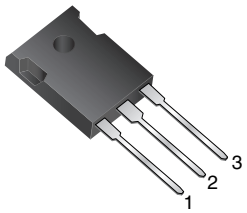
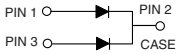
Dual Common-Cathode Ultrafast Plastic Rectifier



TO-247AD (TO-3P)



FEATURES

- Glass passivated chip junction
- Ultrafast recovery time
- Low switching losses, high efficiency
- Low forward voltage drop
- High forward surge capability
- 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 high frequency rectifier of switching mode power supplies, inverters, freewheeling diodes, dc-to-dc converters, and other power switching application.

PRIMARY CHARACTERISTICS	
$I_{F(AV)}$	30 A
V_{RRM}	50 V to 200 V
I_{FSM}	300 A
t_{rr}	25 ns
V_F	0.85 V
T_J max.	150 °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)

PARAMETER	SYMBOL	UG30APT	UG30BPT	UG30CPT	UG30DPT	UNIT
Maximum repetitive peak reverse voltage	V_{RRM}	50	100	150	200	V
Maximum RMS voltage	V_{RMS}	35	70	105	140	V
Maximum DC blocking voltage	V_{DC}	50	100	150	200	V
Maximum average forward rectified current at T_C = 120 °C	$I_{F(AV)}$	30				A
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load per diode	I_{FSM}	300				A
Operating 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	UG30APT	UG30BPT	UG30CPT	UG30DPT	UNIT
Maximum instantaneous forward voltage per diode	15 A 30 A 10 A	T_J = 100 °C	V_F	1.0 1.15 0.85				V
Maximum DC reverse current at rated DC blocking voltage per diode		T_A = 25 °C T_A = 100 °C	I_R	15 800				µA

ELECTRICAL CHARACTERISTICS (T_A = 25 °C unless otherwise noted)								
PARAMETER	**TEST CONDITIONS**		**SYMBOL**	**UG30APT**	**UG30BPT**	**UG30CPT**	**UG30DPT**	**UNIT**
Maximum reverse recovery time	I_F = 0.5 A, I_R = 1.0 A, I_{rr} = 0.25 A		t_{rr}	25				ns
Maximum reverse recovery time	I_F = 15 A, V_R = 30 V, dI/dt = 50 A/µs, I_{RR} = 10 % I_{RM}	T_J = 25 °C T_J = 100 °C	t_{rr}	35 50				ns
Maximum recovered stored charge	I_F = 15 A, V_R = 30 V, dI/dt = 50 A/µs, I_{RR} = 10 % I_{RM}	T_J = 25 °C T_J = 100 °C	Q_{rr}	22 50				nC
Typical junction capacitance	4.0 V, 1 MHz		C_J	70				pF

THERMAL CHARACTERISTICS (T_A = 25 °C unless otherwise noted)						
PARAMETER	**SYMBOL**	**UG30APT**	**UG30BPT**	**UG30CPT**	**UG30DPT**	**UNIT**
Typical thermal resistance per diode (1)	$R_{\theta JC}$	2.0				°C/W

Note:

(1) Thermal resistance from junction to case per diode mounted on heatsink

ORDERING INFORMATION (Example)					
PACKAGE	**PREFERRED P/N**	**UNIT WEIGHT (g)**	**PACKAGE CODE**	**BASE QUANTITY**	**DELIVERY MODE**
TO-247AD	UG30DPT-E3/45	6.15	30	30/tube	Tube

RATINGS AND CHARACTERISTICS CURVES

(T_A = 25 °C unless otherwise noted)

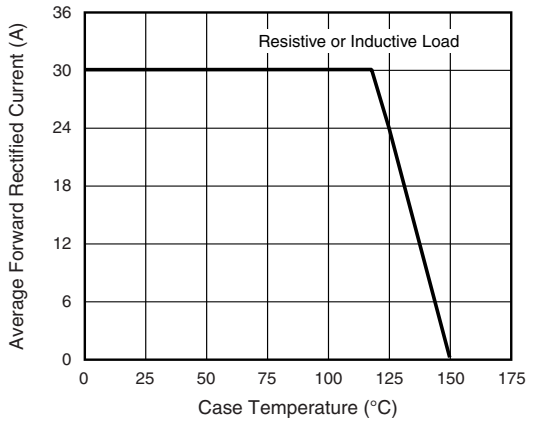


Figure 1. Maximum Forward Current Derating Curve

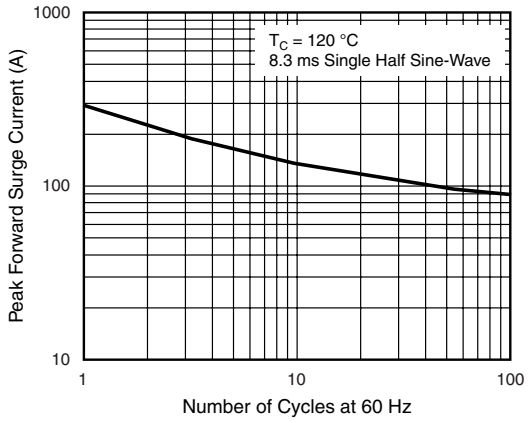


Figure 2. Maximum Non-Repetitive Peak Forward Surge Current Per Diode

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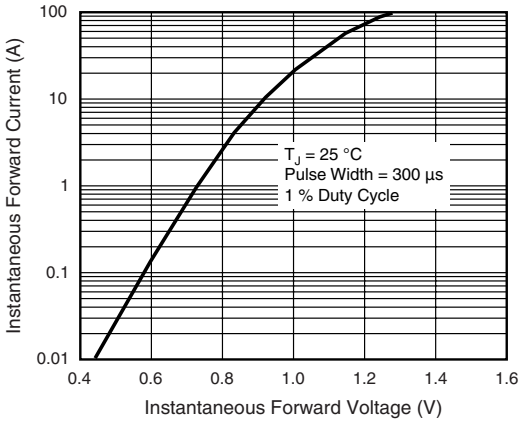


Figure 3. Typical Instantaneous Forward Characteristics Per Diode

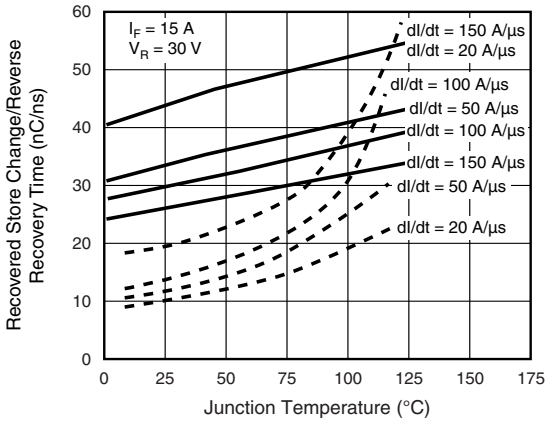


Figure 5. Reverse Switching Characteristics Per Diode

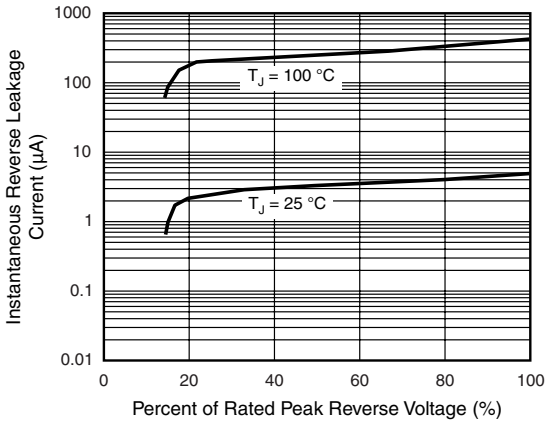


Figure 4. Typical Reverse Leakage Characteristics Per Diode

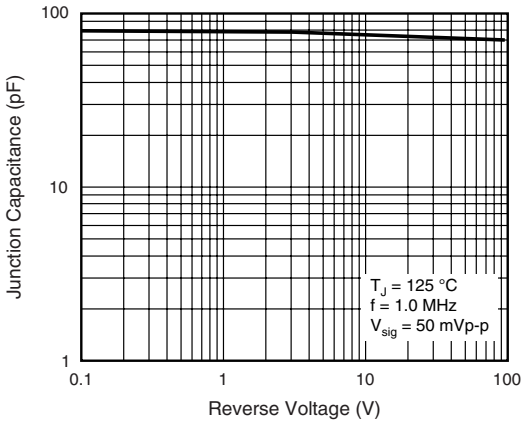
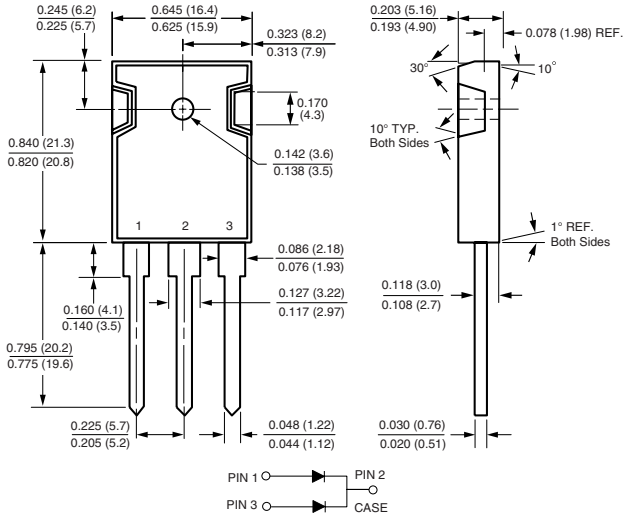


Figure 6. Typical Junction Capacitance Per Diode

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

TO-247AD (TO-3P)



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