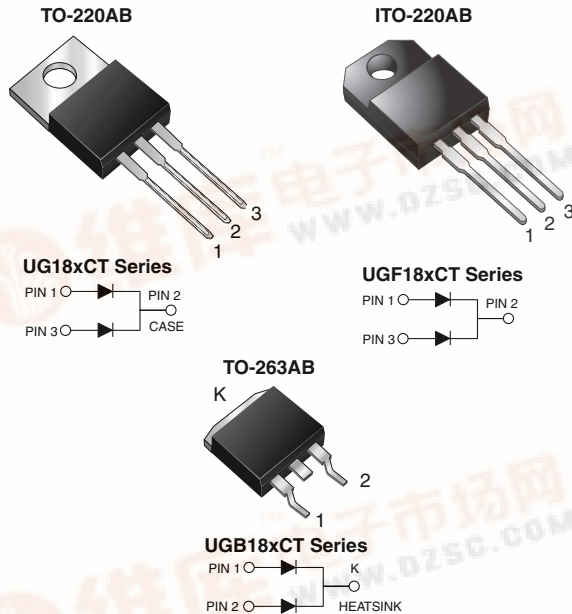




UG(F,B)18ACT thru UG(F,B)18DCT

Vishay General Semiconductor

Dual Common-Cathode Ultrafast Plastic Rectifier



FEATURES

- Glass passivated chip junction
- Ultrafast recovery time
- Low switching losses, high efficiency
- Low forward voltage drop
- High forward surge capability
- Meets MSL level 1, per J-STD-020, LF maximum peak of 245 °C (for TO-263AB package)
- Solder dip 260 °C, 40 s (for TO-220AB and ITO-220AB package)
- 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

$I_{F(AV)}$	18 A
V_{RRM}	50 V to 200 V
I_{FSM}	175 A
t_{rr}	20 ns
V_F	0.95 V
$T_J \text{ max.}$	150 °C

MECHANICAL DATA

Case: TO-220AB, ITO-220AB, TO-263AB

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, HE3 suffix for high reliability grade (AEC Q101 qualified), meets JESD 201 class 2 whisker test

Polarity: As marked

Mounting Torque: 10 in-lbs maximum

MAXIMUM RATINGS ($T_C = 25 \text{ °C}$ unless otherwise noted)

PARAMETER	SYMBOL	UG18ACT	UG18BCT	UG18CCT	UG18DCT	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 $T_C = 105 \text{ °C}$	$I_{F(AV)}$	18				A
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load per diode	I_{FSM}	175				A
Operating junction and storage temperature range	T_J, T_{STG}	- 65 to + 150				°C
Isolation voltage (ITO-220AB only) from terminal to heatsink $t = 1 \text{ min}$	V_{AC}	1500				V



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ELECTRICAL CHARACTERISTICS (T _C = 25 °C unless otherwise noted)								
PARAMETER	TEST CONDITIONS		SYMBOL	UG18ACT	UG18BCT	UG18CCT	UG18DCT	UNIT
Maximum instantaneous forward voltage per diode ⁽¹⁾	9.0 A 20 A 5.0 A	T _J = 100 °C	V _F	1.1 1.2 0.95				V
Maximum DC reverse current at rated DC blocking voltage per diode		T _A = 25 °C T _A = 100 °C	I _R	10 300				μA
Maximum reverse recovery time per diode	I _F = 0.5 A, I _R = 1.0 A, I _{rr} = 0.25 A		t _{rr}	20				ns
Maximum reverse recovery time per diode	I _F = 9.0 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}	30 50				ns
Maximum stored charge per diode	I _F = 9.0 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}	20 45				nC
Typical junction capacitance per diode	at 4.0 V, 1 MHz		C _J	30				pF

Note:

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

THERMAL CHARACTERISTICS ($T_C = 25\text{ }^{\circ}\text{C}$ unless otherwise noted)					
PARAMETER	SYMBOL	UG18	UGF18	UGB18	UNIT
Typical thermal resistance from junction to case per diode	$R_{\theta JC}$	4.0	6.0	4.0	$^{\circ}\text{C}/\text{W}$

ORDERING INFORMATION (Example)					
PACKAGE	PREFERRED P/N	UNIT WEIGHT (g)	PACKAGE CODE	BASE QUANTITY	DELIVERY MODE
TO-220AB	UG18DCT-E3/45	1.85	45	50/tube	Tube
ITO-220AB	UGF18DCT-E3/45	2.00	45	50/tube	Tube
TO-263AB	UGB18DCT-E3/45	1.35	45	50/tube	Tube
TO-263AB	UGB18DCT-E3/81	1.35	81	800/reel	Tape and reel
TO-220AB	UG18DCTHE3/45 ⁽¹⁾	1.85	45	50/tube	Tube
ITO-220AB	UGF18DCTHE3/45 ⁽¹⁾	2.00	45	50/tube	Tube
TO-263AB	UGB18DCTHE3/45 ⁽¹⁾	1.35	45	50/tube	Tube
TO-263AB	UGB18DCTHE3/81 ⁽¹⁾	1.35	81	800/reel	Tape and reel

Note:

(1) Automotive grade AEC Q101 qualified



RATINGS AND CHARACTERISTICS CURVES

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

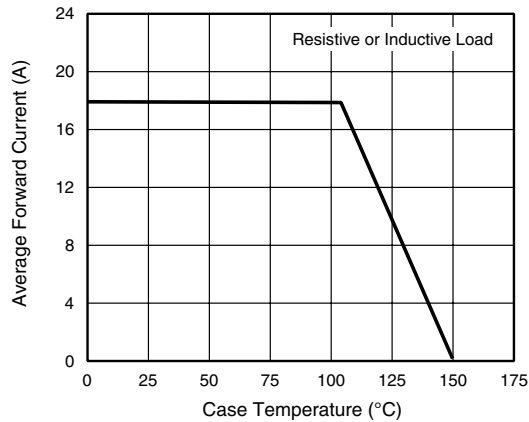


Figure 1. Forward Current Derating Curve

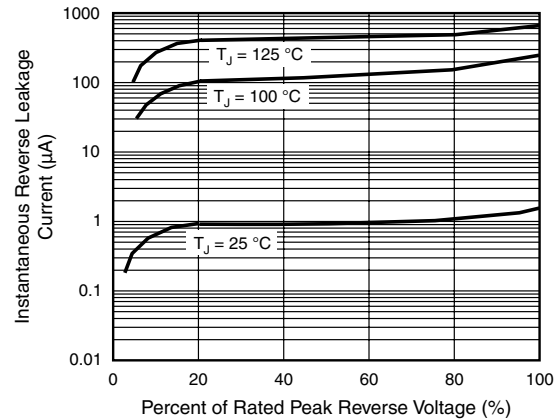


Figure 4. Typical Reverse Leakage Characteristics Per Diode

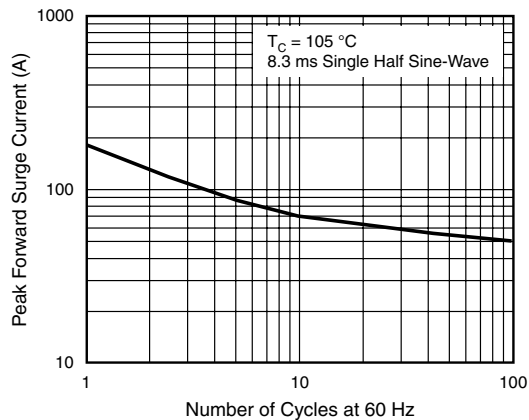


Figure 2. Maximum Non-Repetitive Peak Forward Surge Current Per Diode

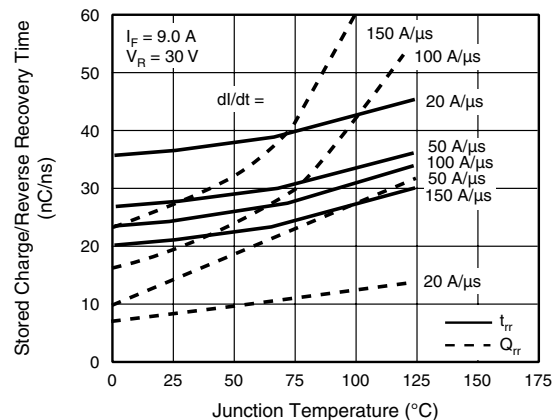


Figure 5. Reverse Switching Characteristics Per Diode

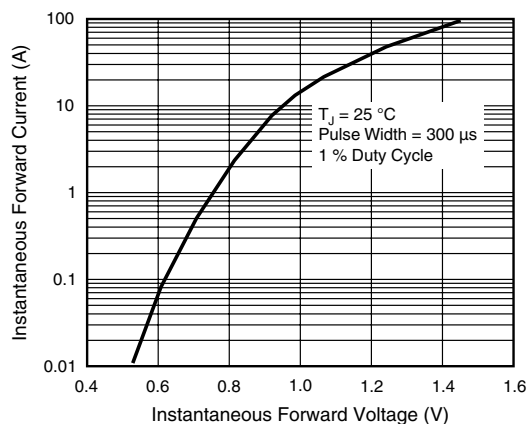


Figure 3. Typical Instantaneous Forward Characteristics Per Diode

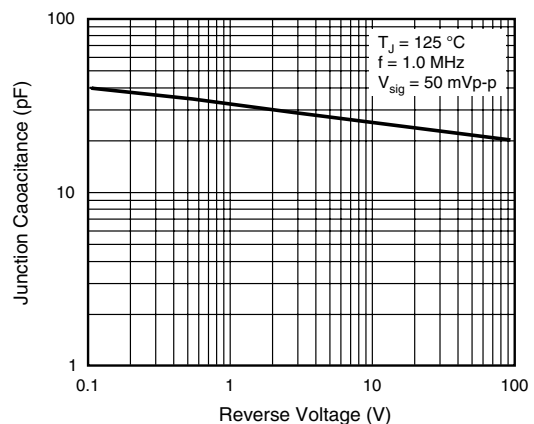


Figure 6. Typical Junction Capacitance Per Diode

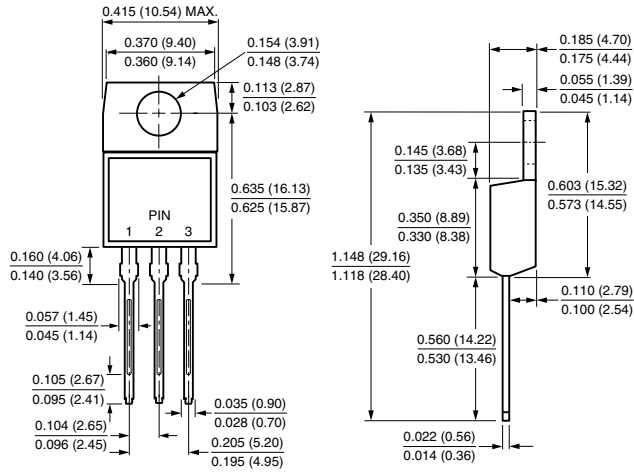
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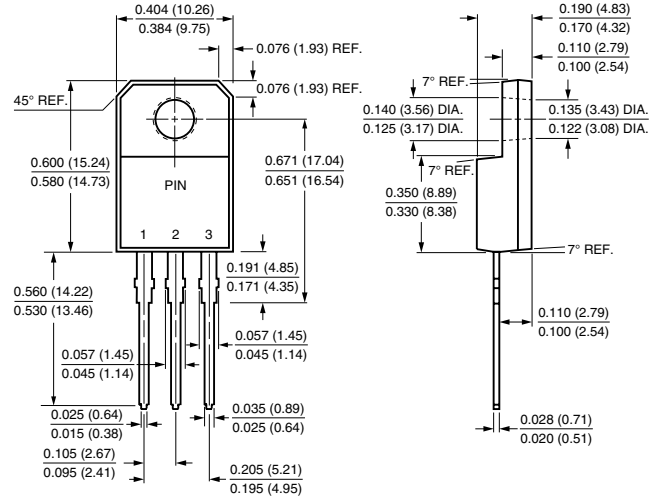


PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

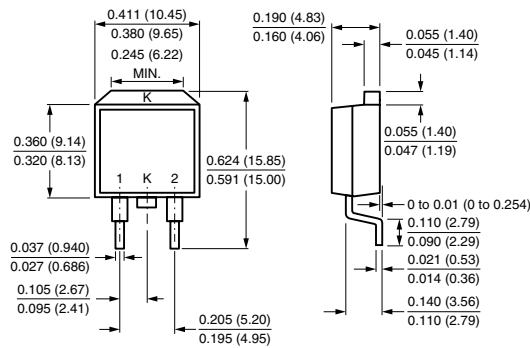
TO-220AB



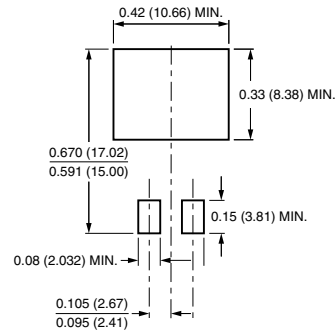
ITO-220AB



TO-263AB



Mounting Pad Layout





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