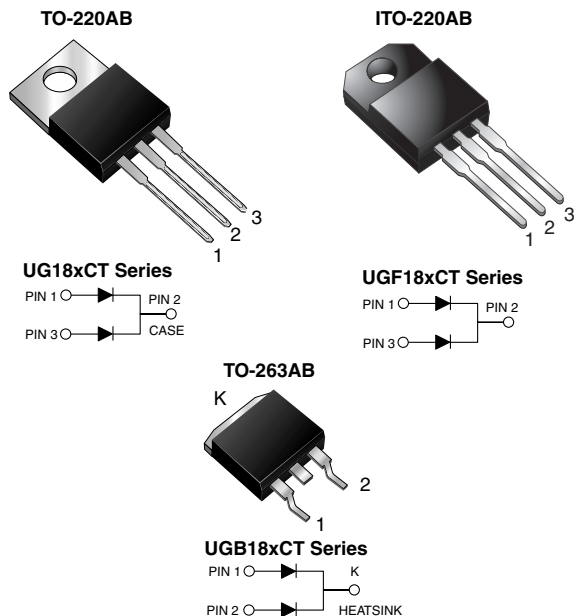


## Dual Common Cathode Ultrafast Plastic Rectifier



### FEATURES

- Power pack
- 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 275 °C max., 10 s per JESD 22-B106 (for TO-220AB and ITO-220AB package)
- AEC-Q101 qualified
- Material categorization: For definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)



**RoHS**  
COMPLIANT

### TYPICAL APPLICATIONS

For use in high frequency rectifier of switching mode power supplies, inverters, freewheeling diodes, DC/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
$V_F$ at $I_F$	0.95 V
$T_J$ max.	150 °C
Package	TO-220AB, ITO-220AB, TO-263AB
Diode variations	Common cathode

### MECHANICAL DATA

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

Molding compound meets UL 94V-0 flammability rating  
Base P/N-E3 - RoHS-compliant, commercial grade  
Base P/NHE3 - RoHS-compliant, AEC-Q101 qualified

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

E3 suffix meets JESD 201 class 1A whisker test, HE3 suffix meets JESD 201 class 2 whisker test

**Polarity:** As marked

**Mounting Torque:** 10 in-lbs maximum

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

PARAMETER	SYMBOL	UG18ACT	UG18BCT	UG18CCT	UG18DCT	UNIT
Max. repetitive peak reverse voltage	$V_{RRM}$	50	100	150	200	V
Max. RMS voltage	$V_{RMS}$	35	70	105	140	V
Max. DC blocking voltage	$V_{DC}$	50	100	150	200	V
Max. average forward rectified current at $T_C = 105$ °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 $t = 1$ min	$V_{AC}$	1500				V



ELECTRICAL CHARACTERISTICS (T <sub>C</sub> = 25 °C unless otherwise noted)								
PARAMETER	TEST CONDITIONS		SYMBOL	UG18ACT	UG18BCT	UG18CCT	UG18DCT	UNIT
Max. instantaneous forward voltage per diode <sup>(1)</sup>	9.0 A	T <sub>J</sub> = 100 °C	V <sub>F</sub>	1.1			V	
	20 A			1.2				
	5.0 A			0.95				
Max. DC reverse current at rated DC blocking voltage per diode			T <sub>A</sub> = 25 °C	I <sub>R</sub>	10			μA
			T <sub>A</sub> = 100 °C		300			
Max. reverse recovery time per diode	I <sub>F</sub> = 0.5 A, I <sub>R</sub> = 1.0 A, I <sub>rr</sub> = 0.25 A		t <sub>rr</sub>	20			ns	
Max. reverse recovery time per diode	I <sub>F</sub> = 9.0 A, V <sub>R</sub> = 30 V, dI/dt = 50 A/μs, I <sub>rr</sub> = 10 % I <sub>RM</sub>	T <sub>J</sub> = 25 °C	t <sub>rr</sub>	30			ns	
		T <sub>J</sub> = 100 °C		50				
Max. stored charge per diode	I <sub>F</sub> = 9.0 A, V <sub>R</sub> = 30 V, dI/dt = 50 A/μs, I <sub>rr</sub> = 10 % I <sub>RM</sub>	T <sub>J</sub> = 25 °C	Q <sub>rr</sub>	20			nC	
		T <sub>J</sub> = 100 °C		45				
Typical junction capacitance per diode	at 4.0 V, 1 MHz		C <sub>J</sub>	30			pF	

**Notes**

<sup>(1)</sup> Pulse test: 300  $\mu\text{s}$  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 <sup>(1)</sup>	1.85	45	50/tube	Tube
ITO-220AB	UGF18DCTHE3/45 <sup>(1)</sup>	2.00	45	50/tube	Tube
TO-263AB	UGB18DCTHE3/45 <sup>(1)</sup>	1.35	45	50/tube	Tube
TO-263AB	UGB18DCTHE3/81 <sup>(1)</sup>	1.35	81	800/reel	Tape and reel

**Note**

<sup>(1)</sup> AEC-Q101 qualified



## RATINGS AND CHARACTERISTICS CURVES ( $T_A = 25^\circ\text{C}$ unless otherwise noted)

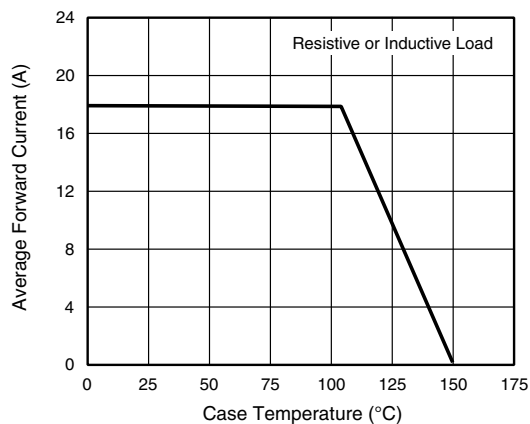


Fig. 1 - Forward Current Derating Curve

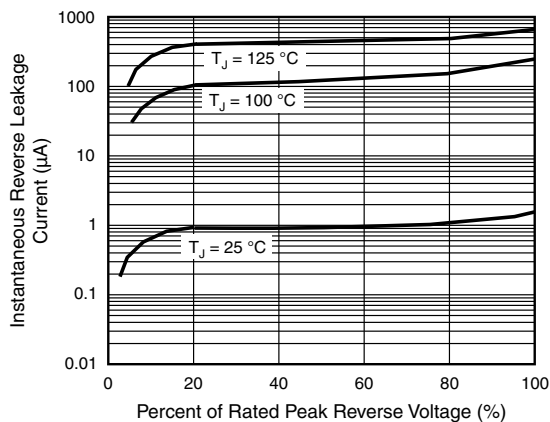


Fig. 4 - Typical Reverse Leakage Characteristics Per Diode

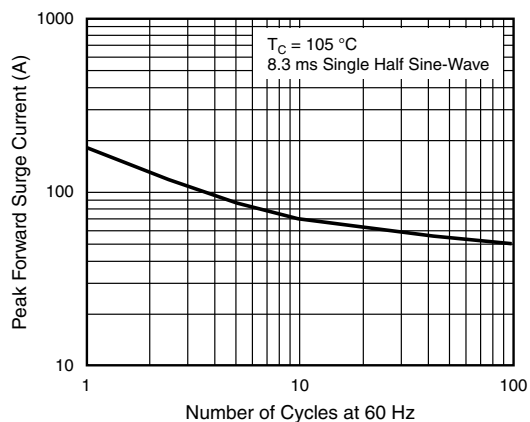


Fig. 2 - Max. Non-Repetitive Peak Forward Surge Current Per Diode

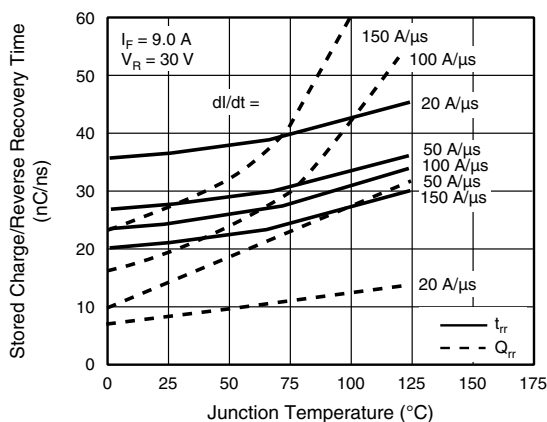


Fig. 5 - Reverse Switching Characteristics Per Diode

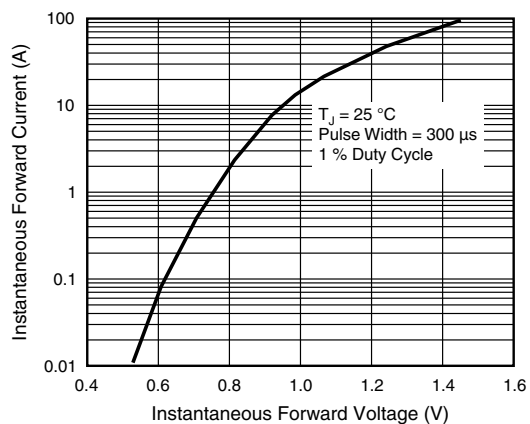


Fig. 3 - Typical Instantaneous Forward Characteristics Per Diode

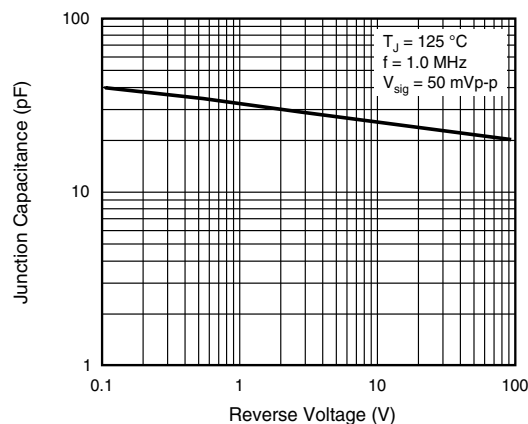
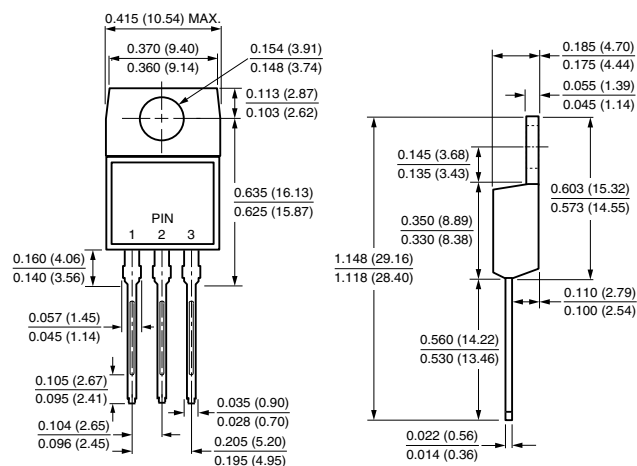


Fig. 6 - Typical Junction Capacitance Per Diode

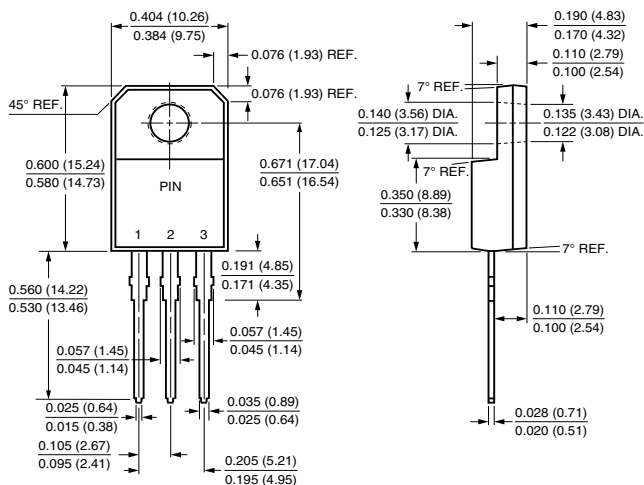


## PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

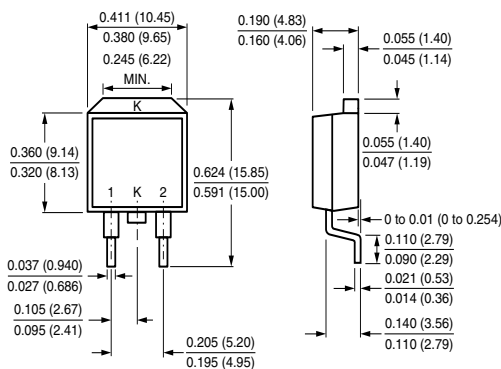
TO-220AB



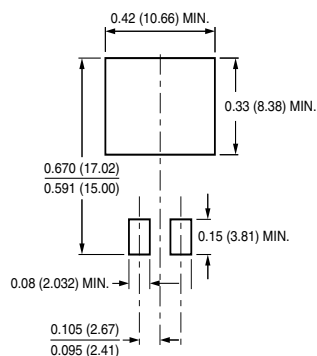
ITO-220AB



TO-263AB



Mounting Pad Layout





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