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Data Sheet **November 2013**

15 A, 600 V, Ultrafast Diode

The RURP1560 is an ultrafast diode with low forward voltage drop. This device is intended for use as freewheeling and clamping diodes in a variety of switching power supplies and other power switching applications. It is specially suited for use in switching power supplies and industrial application.

Features

- Ultrafast Recovery t_{rr} = 60 ns (@ I_F = 15 A)
- Max Forward Voltage, V_F = 1.5 V (@ T_C = 25°C)
- 600 V Reverse Voltage and High Reliability
- Avalanche Energy Rated
- RoHS Compliant

Applications

- Switching Power Supply
- Power Switching Circuits
- General Purpose

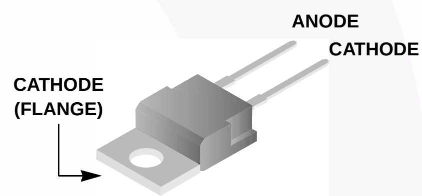
Ordering Information

PART NUMBER	PACKAGE	BRAND
RURP1560	TO-220AC-2L	RURP1560

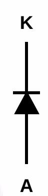
NOTE: When ordering, use the entire part number

Packaging

JEDEC TO-220AC



Symbol



Absolute Maximum Ratings $T_C = 25^oC$, Unless Otherwise Specified

		RURP1560	UNIT
Peak Repetitive Reverse Voltage	V_{RRM}	600	V
Working Peak Reverse Voltage	V_{RWM}	600	V
DC Blocking Voltage	V_R	600	V
Average Rectified Forward Current ($T_C = 145^oC$)	$I_{F(AV)}$	15	A
Repetitive Peak Surge Current (Square Wave 20kHz)	I_{FRM}	30	A
Nonrepetitive Peak Surge Current (Halfwave 1 Phase 60Hz)	I_{FSM}	200	A
Maximum Power Dissipation	P_D	100	W
Avalanche Energy (See Figures 7 and 8)	E_{AVL}	20	mJ
Operating and Storage Temperature	T_{STG}, T_J	-55 to 175	^oC

Electrical Specifications $T_C = 25^oC$, Unless Otherwise Specified

SYMBOL	TEST CONDITION	RURP1560 MIN	TYP	MAX	UNIT
V_F	I_F = 15 A	-	-	1.5	V
	I_F = 15 A, $T_C = 150^oC$	-	-	1.2	V
I_R	V_R = 600 V	-	-	100	µA
	V_R = 600 V, $T_C = 150^oC$	-	-	500	µA
t_{rr}	I_F = 1 A, dI_F/dt = 100 A/µs	-	-	55	ns
	I_F = 15 A, dI_F/dt = 100 A/µs	-	-	60	ns
t_a	I_F = 15 A, dI_F/dt = 100 A/µs	-	30	-	ns
t_b	I_F = 15 A, dI_F/dt = 100 A/µs	-	20	-	ns
$R_{\theta JC}$		-	-	1.5	$^oC/W$

DEFINITIONS

V_F = Instantaneous forward voltage (pw = 300µs, D = 2%).

I_R = Instantaneous reverse current.

T_{rr} = Reverse recovery time at dI_F/dt = 100A/µs (See Figure 6), summation of $t_a + t_b$.

t_a = Time to reach peak reverse current at dI_F/dt = 100A/µs (See Figure 6).

t_b = Time from peak I_{RM} to projected zero crossing of I_{RM} based on a straight line from peak I_{RM} through 25% of I_{RM} (See Figure 6).

$R_{\theta JC}$ = Thermal resistance junction to case.

pw = pulse width.

D = duty cycle.

Typical Performance Curves

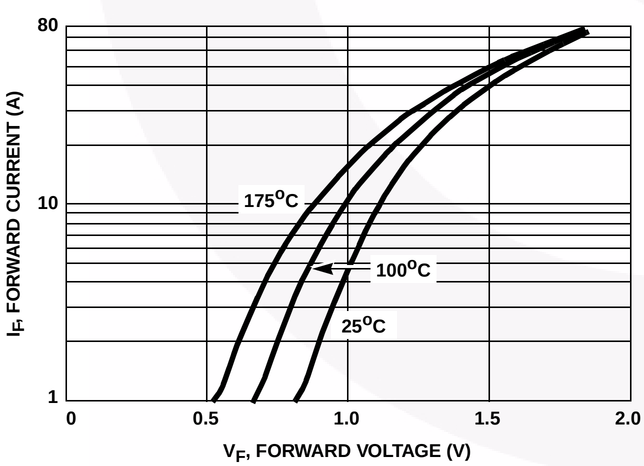


FIGURE 1. FORWARD CURRENT vs FORWARD VOLTAGE

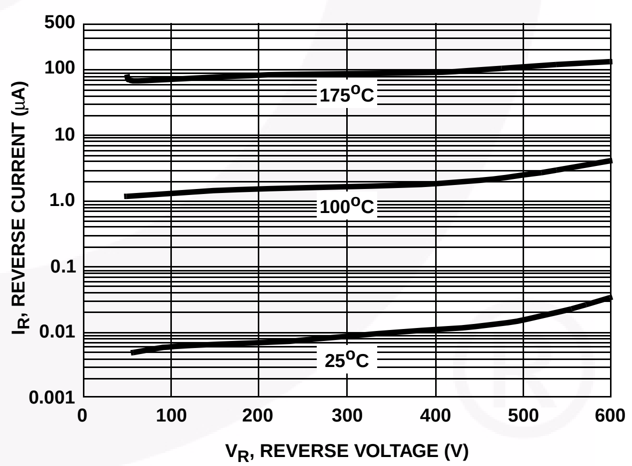


FIGURE 2. REVERSE CURRENT vs REVERSE VOLTAGE

Typical Performance Curves (Continued)

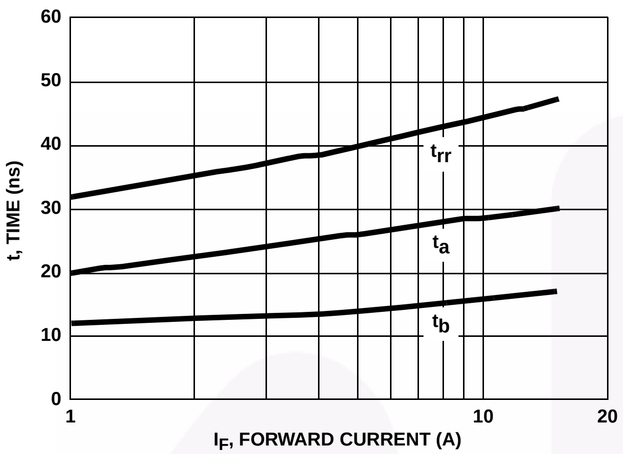


FIGURE 3. t_{rr}, t_a AND t_b CURVES vs FORWARD CURRENT

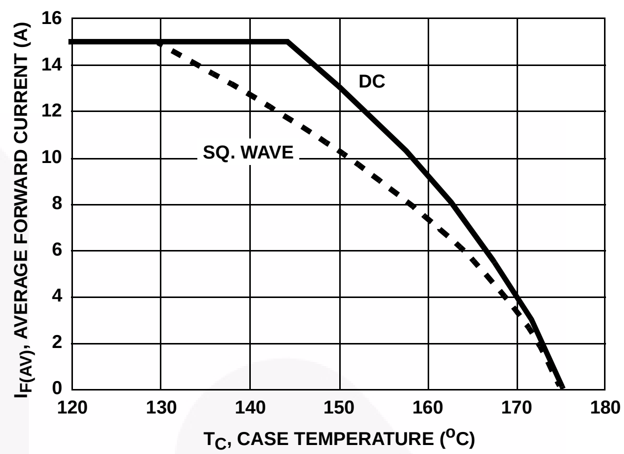


FIGURE 4. CURRENT DERATING CURVE

Test Circuits and Waveforms

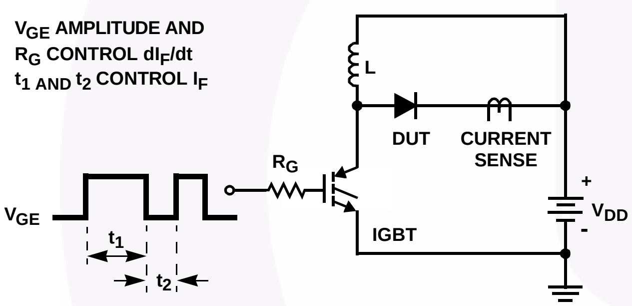


FIGURE 5. t_{rr} TEST CIRCUIT

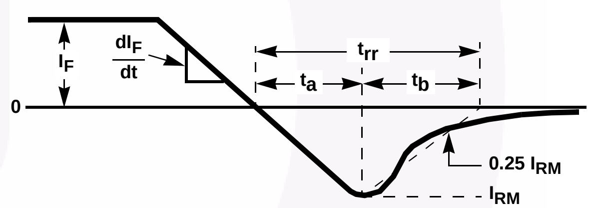


FIGURE 6. t_{rr} WAVEFORMS AND DEFINITIONS

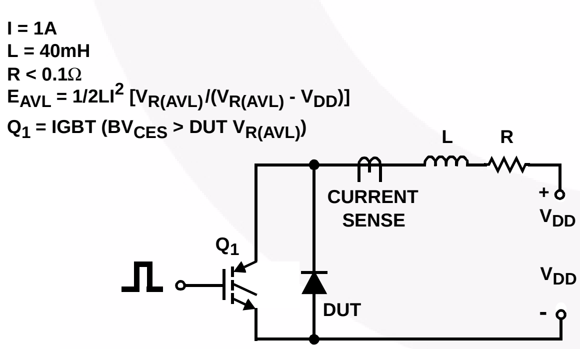


FIGURE 7. AVALANCHE ENERGY TEST CIRCUIT

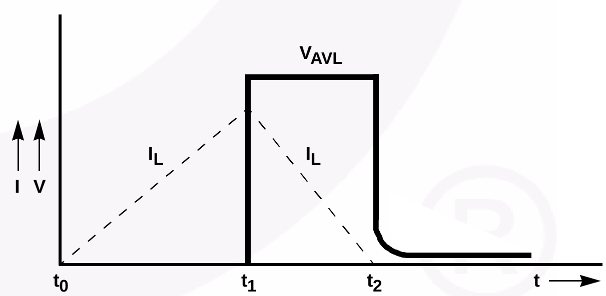
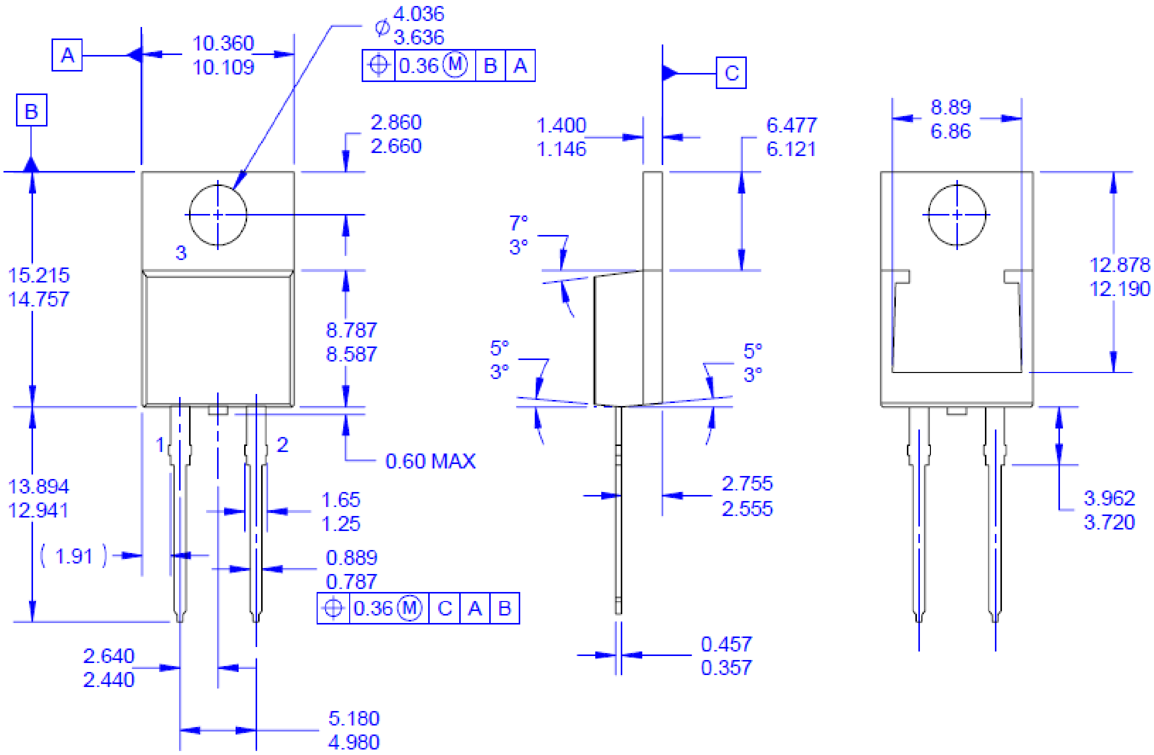
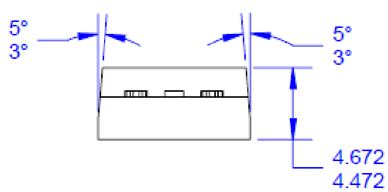


FIGURE 8. AVALANCHE CURRENT AND VOLTAGE WAVEFORMS

Mechanical Dimensions





NOTES:

A. PACKAGE REFERENCE: JEDEC TO220 VARIATION AC.
B. ALL DIMENSIONS ARE IN MILLIMETERS.
C. DIMENSION AND TOLERANCE AS PER ASME Y14.5-1994.
D. DIMENSIONS ARE EXCLUSIVE OF BURRS, MOLD FLASH AND TIE BAR PROTRUSIONS.
E. THIS PACKAGE IS FSSZ INTERNAL PRODUCTION AND INTENDED FOR DELTA CUSTOMER ONLY.
F. DRAWING FILE NAME: TO220B02REV4

Figure 9. TO-220 2L - TO-220, MOLDED, 2LD

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