FAIRCHILD SEMICONDUCTOR®

November 2013

RURG1520CC

30 A, 200 V, Ultrafast Dual Diode

Feature

- Ultrafast Recovery t_{rr} = 35 ns (@ I_F = 15 A)
- Max Forward Voltage, V_F = 1.05 V (@ T_C = 25°C)
- Reverse Voltage, V_{RRM} = 200 V
- Avalanche Energy Rated
- RoHS Compliant

Description

The RURG1520CC is an ultrafast dual 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.

Applications

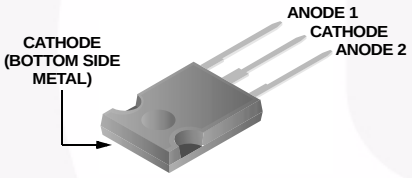
- Switching Power Supplies
- Power Switching Circuits
- General Purpose

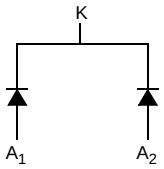
Ordering Informations

Part Number	Package	Brand
RURG1520CC	TO-247-2L	RURG1520C

Note: When ordering, use the entire part number.

JEDEC STYLE TO-247





Absolute Maximum Ratings (Per Leg) T_C = 25°C

Symbol	Parameter	RURG1520C	Unit
V_{RRM}	Peak Repetitive Reverse Voltage	200	V
V_{RWM}	Working Peak Reverse Voltage	200	V
V_R	DC Blocking Voltage	200	V
$I_{F(AV)}$	Average Rectified Forward Current (T_C = 157°C)	15	A
I_{FRM}	Repetitive Peak Surge Current (Square Wave, 20 kHz)	30	A
I_{FSM}	Nonrepetitive Peak Surge Current (Halfwave, 1 phase, 60 Hz)	200	A
P_D	Maximum Power Dissipation	100	W
E_{AVL}	Avalanche Energy (See Figures 8 and 9)	20	mJ
T_{STG}, T_J	Operating and Storage Temperature	-65 to 175	°C

Electrical Characteristics (Per Leg) T_C = 25°C, unless otherwise specified

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
V_F	Forward Voltage	I_F = 15 A			1.05	V
		I_F = 15 A, T_C = 150°C			0.85	V
I_R	Reverse Leakage	V_R = 200 V			100	µA
		V_R = 200 V, T_C = 150°C			500	µA
t_{rr}	Reverse Recovery Time	I_F = 1 A, dI_F/dt = 100 A/µs			30	ns
		I_F = 15 A, dI_F/dt = 100 A/µs			35	ns
t_a		I_F = 15 A, dI_F/dt = 100 A/µs		20		ns
t_b		I_F = 15 A, dI_F/dt = 100 A/µs		10		ns
$R_{\theta JC}$					1.5	°C/W

DEFINITIONS

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

I_R = Instantaneous reverse current.

t_{rr} = Reverse recovery time (See Figure 6), summation of $t_a + t_b$.

t_a = Time to reach peak reverse current (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

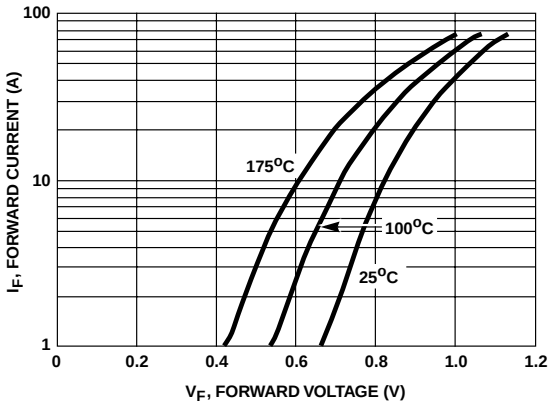


Figure 2. Reverse Current vs Reverse Voltage

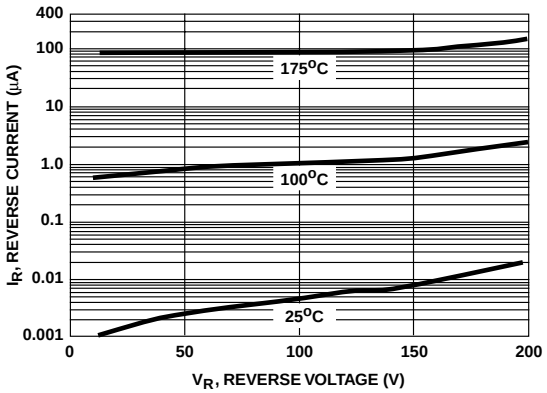


Figure 3. t_{rr}, t_a and tb Curves vs Forward Current

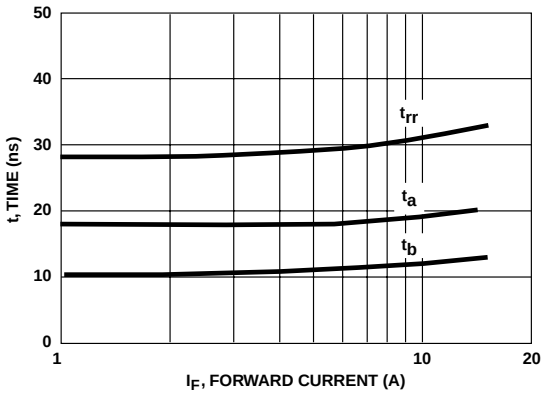
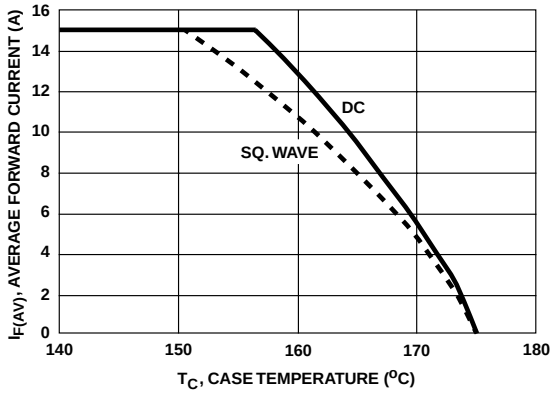


Figure 4. Current Derating Curve



Test Circuits and Waveforms

Figure 5. t_{rr} Test Circuit

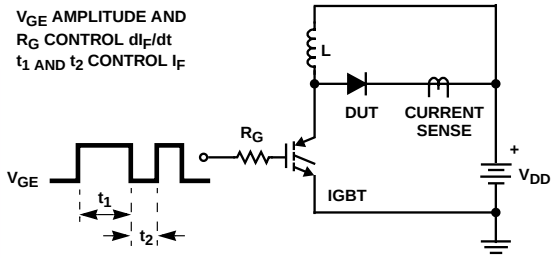


Figure 6. t_{rr} Waveforms and Definitions

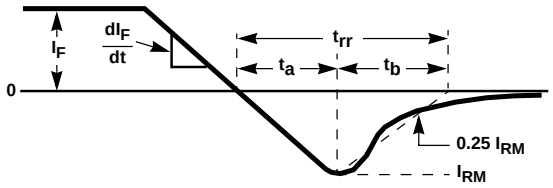


Figure 7. Avalanche Energy Test Circuit

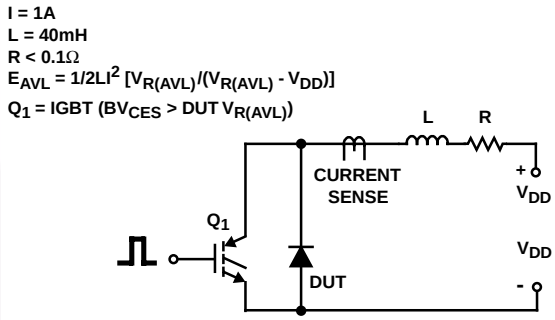
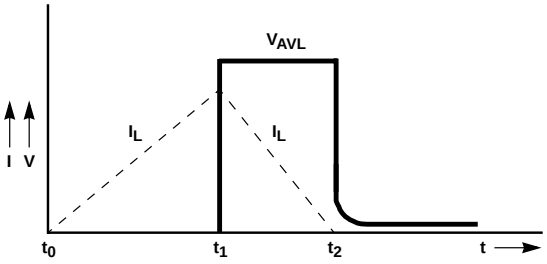


Figure 8. Avalanche Current and Voltage Waveforms



TO247-3L

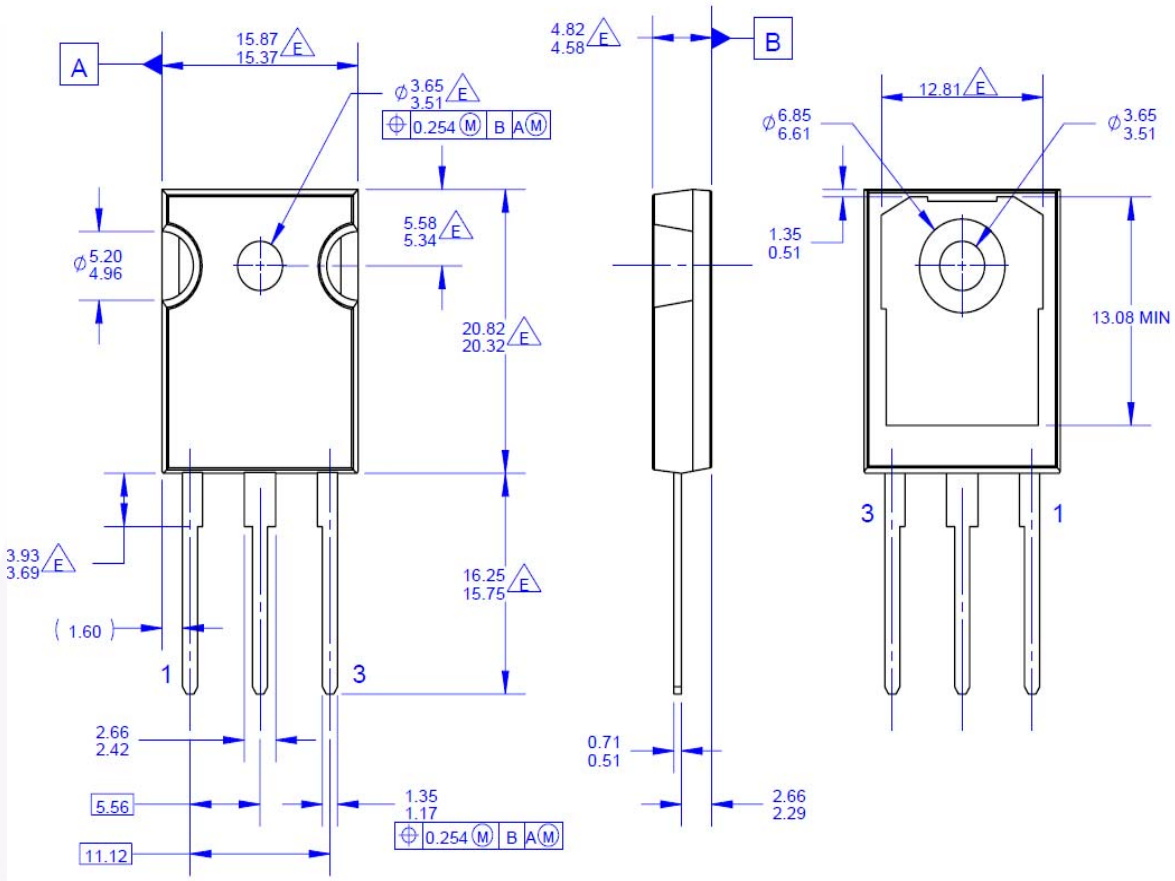


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Figure 11. TO-247,Molded, 3LD, Jedec Option AB

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