FAIRCHILD SEMICONDUCTOR®

RURG1520CC
15A, 200V Ultrafast Dual Diode

Features

- Ultrafast with Soft Recovery............................<30ns
- Operating Temperature...................................175°C
- Reverse Voltage...200V
- Avalanche Energy Rated
- Planar Construction

Applications

- Switching Power Supplies
- Power Switching Circuits
- General Purpose

Ordering Informations

Part Number	Package	Brand
RURG1520CC	TO-247	RURG1520C

Note: When ordering, use the entire part number.

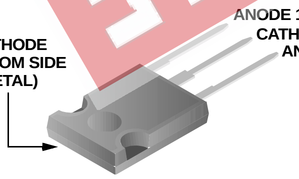
Description

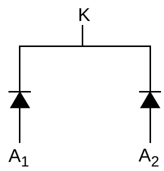
The RURG1520CC is an ultrafast dual diode with soft recovery characteristics (trr<30ns). It has low forward voltage drop and is of silicon nitride passivated ion-implanted epitaxial planar construction.

This device is intended for use as a freewheeling/clamping diode and rectifier in a variety of switching power supplies and other power switching applications. Its low stored charge and ultrafast recovery with soft recovery characteristic minimizes ringing and electrical noise in many power switching circuits, reducing power loss in the switching transistors.

Formerly developmental type TA09926.

JEDEC STYLE TO-247





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

Symbol	Parameter	RURG1520C	Units
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, 20kHz)	30	A
I_{FSM}	Nonrepetitive Peak Surge Current (Halfwave, 1 phase, 60Hz)	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

RURG1520CC 15A, 200V Ultrafast Dual Diode

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

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

DEFINITIONS

V_F = Instantaneous forwrd voltage (pw = 300µs, 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

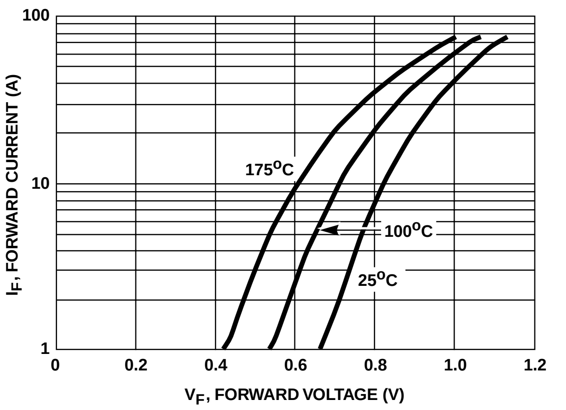


Figure 2. Reverse Current vs Reverse Voltage

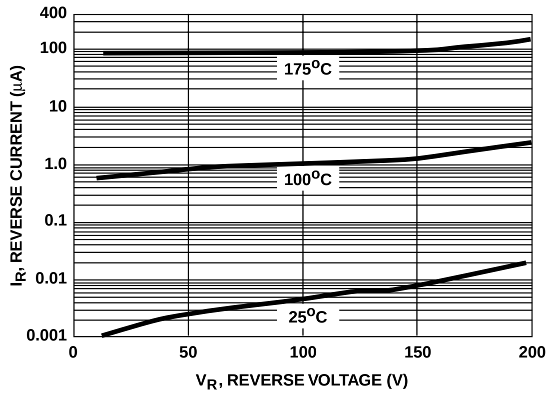


Figure 3. t_{rr}, t_a and tb Curves vs Forward Current

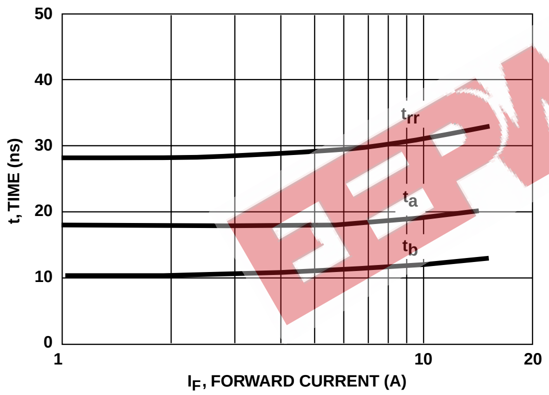
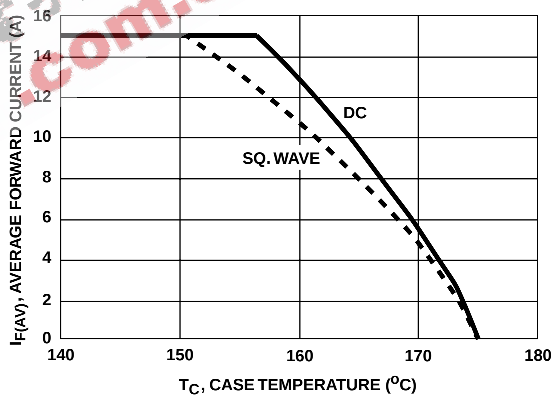


Figure 4. Current Derating Curve



Test Circuits and Waveforms

Figure 5. t_{rr} Test Circuit

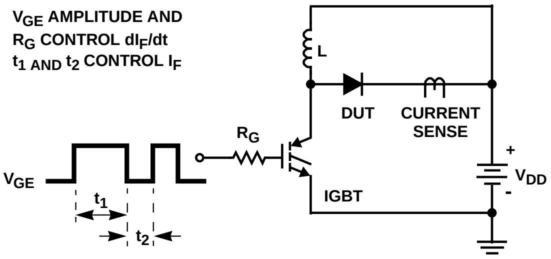


Figure 6. t_{rr} Waveforms and Definitions

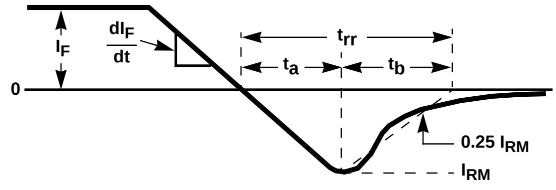


Figure 7. Avalanche Energy Test Circuit

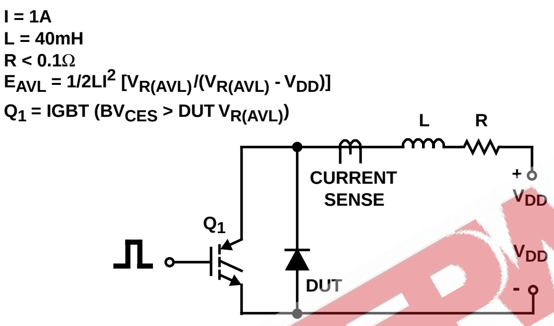
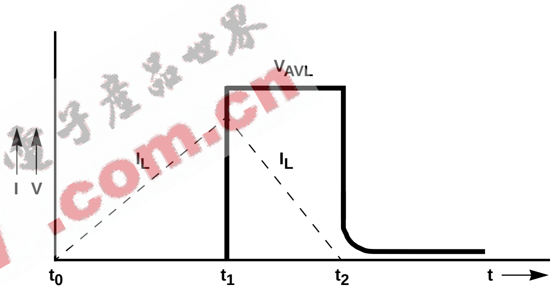


Figure 8. Avalanche Current and Voltage Waveforms



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