

ANTREX Electronics

Electronic Components Sourcing Information

Product Reference Information

Part Number: RHRP30120-F102
Manufacturer: onsemi
Package: TO-220-2
Availability: Please confirm with sales

Product Page:

<https://antrexco.com/product/details/onsemi/rhrp30120-f102.html>

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Secure sourcing support for OEM / EMS projects

Note:

This PDF includes an ANTREX product reference cover page.

The original manufacturer datasheet follows from the next page.



30 A, 1200 V, Hyperfast Diode

The RHRP30120 is a hyperfast diode with soft recovery characteristics. It has the half recovery time of ultrafast diodes and is silicon nitride passivated ionimplanted epitaxial planar construction. These devices are intended to be used as freewheeling/ clamping diodes and diodes in a variety of switching power supplies and other power switching applications. Their low stored charge and hyperfast soft recovery minimize ringing and electrical noise in many power switching circuits reducing power loss in the switching transistors.

Ordering Information

PART NUMBER	PACKAGE	BRAND
RHRP30120	TO-220AC	RHR30120

NOTE: When ordering, use the entire part number.

Symbol



Features

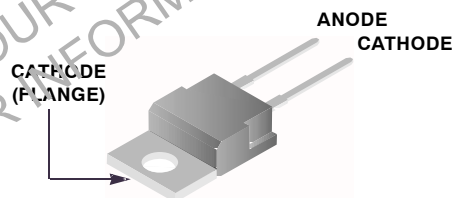
- Hyperfast Recovery $t_{rr} = 85$ ns (@ $I_F = 30$ A)
- Max Forward Voltage, $V_F = 3.2$ V (@ $T_J = 25^\circ\text{C}$)
- 1200 V Reverse Voltage and High Reliability
- Avalanche Energy Rated
- RoHS Compliant

Applications

- Switching Power Supplies
- Power Switching Circuits
- General Purpose

Packaging

JEDEC TO-220AC



Absolute Maximum Ratings $T_J = 25^\circ\text{C}$

		RHRP30120	UNIT
Peak Repetitive Reverse Voltage	RRM	1200	V
Working Peak Reverse Voltage	RWM	1200	V
DC Blocking Voltage	R	1200	V
Average Rectified Forward Current	F(AV)	30	A
($T_J = 78^\circ\text{C}$)			
Repetitive Peak Surge Current	FRM	60	A
(Square Wave, 20 kHz)			
Nonrepetitive Peak Surge Current	FSM	300	A
(Halfwave, 1 Phase, 60 Hz)			
Maximum Power Dissipation	D	125	W
Avalanche Energy (See Figures 7 and 8)	AVL	30	mJ
Operating and Storage Temperature	STG, T _J	-65 to 175	$^\circ\text{C}$

Electrical Specifications $T_C = 25^\circ\text{C}$, Unless Otherwise Specified

SYMBOL	TEST CONDITION	MIN	TYP	MAX	UNIT
V_F	$I_F = 30\text{ A}$	–	–	3.2	V
	$I_F = 30\text{ A}, T_C = 150^\circ\text{C}$	–	–	.2	V
I_R	$V_R = 1200\text{ V}$	–	–	250	mA
	$V_R = 1200\text{ V}, T_C = 150^\circ\text{C}$	–	–	1	mA
t_{rr}	$I_F = 1\text{ A}, di_F/dt = 100\text{ A}/\mu\text{s}$	–	–	55	ns
	$I_F = 30\text{ A}, di_F/dt = 100\text{ A}/\mu\text{s}$	–	–	55	ns
t_a	$I_F = 30\text{ A}, di_F/dt = 100\text{ A}/\mu\text{s}$	–	4	–	ns
t_b	$I_F = 30\text{ A}, di_F/dt = 100\text{ A}/\mu\text{s}$	–	2	–	ns
$R_{\theta JC}$		–	–	.2	$^\circ\text{C}/\text{W}$

DEFINITIONS

V_F = Instantaneous forward 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 projected zero crossing of I_{RM} back to I_{RM} through 25% of I_{RM} (See Figure 6).

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

pw = pulse width.

D = duty cycle.

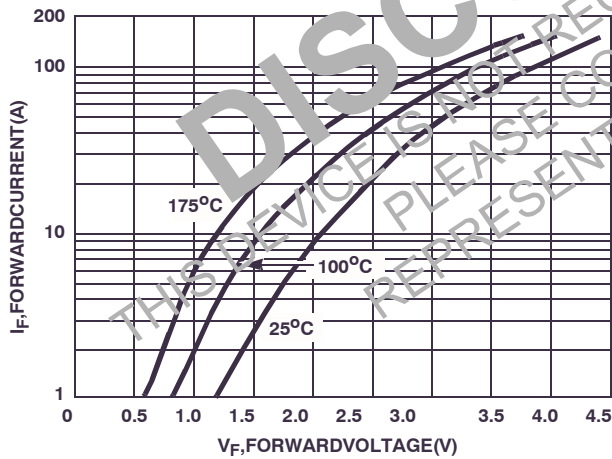
Typical Performance Curves

FIGURE 1. FORWARD CURRENT vs FORWARD VOLTAGE

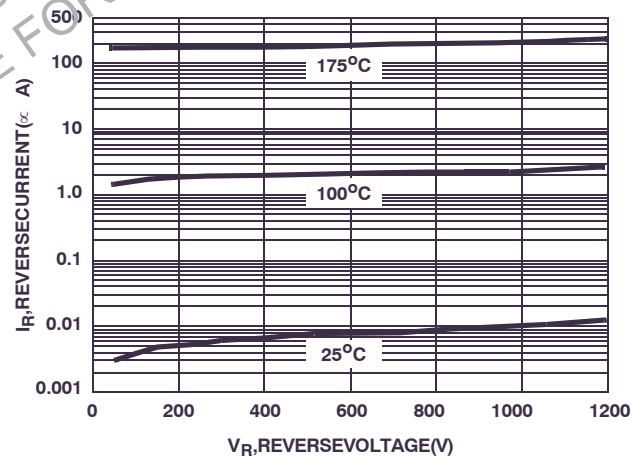


FIGURE 2. REVERSE CURRENT vs REVERSE VOLTAGE

Typical Performance Curves (Continued)

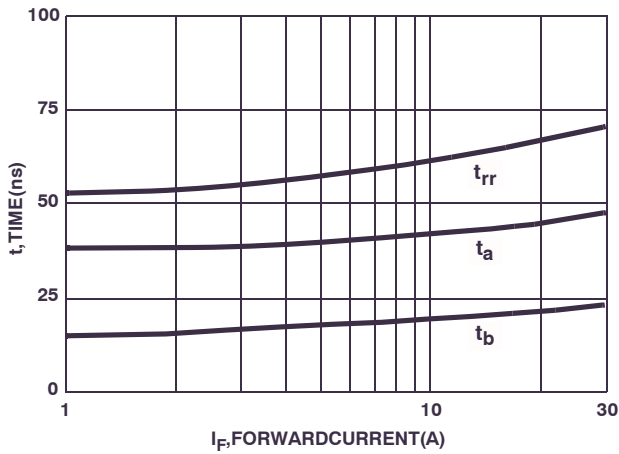


FIGURE 3. t_{rr} , t_a AND t_b CURVES VS FORWARD CURRENT

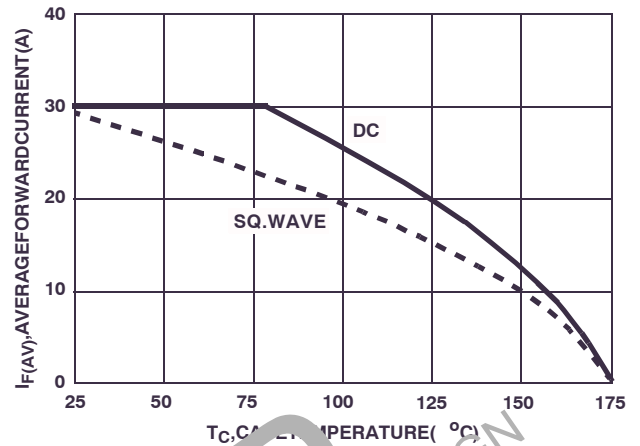


FIGURE 4. CURRENT DERATING CURVE

Test Circuits and Waveforms

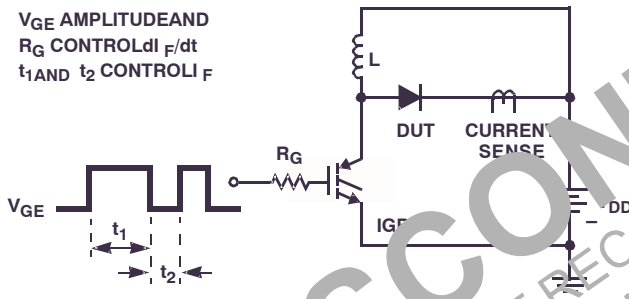


FIGURE 5. t_{rr} TEST CIRCUIT

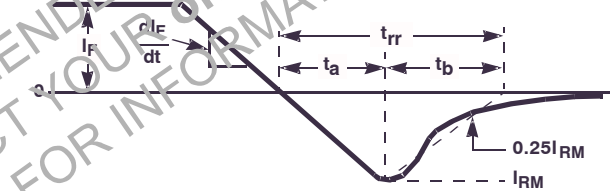


FIGURE 6. t_{rr} WAVEFORMS AND DEFINITIONS

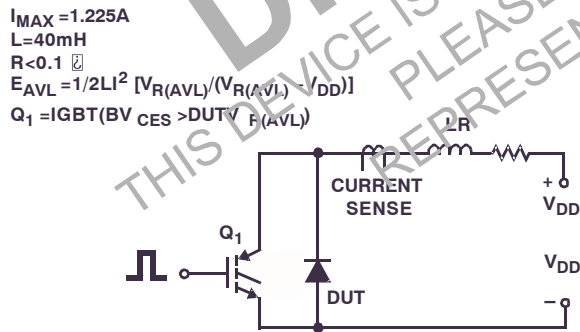


FIGURE 7. AVALANCHE ENERGY TEST CIRCUIT

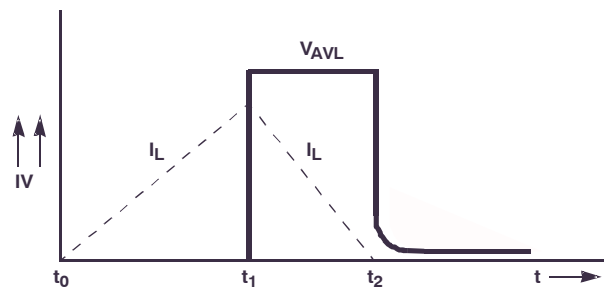


FIGURE 8. AVALANCHE CURRENT AND VOLTAGE WAVEFORMS

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