50A, 1200V Hyperfast Diode

The RHRG50120 is a hyperfast diode with soft recovery characteristics (t_{rr} < 85ns). It has half the recovery time of ultrafast diodes 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 hyperfast soft recovery minimize ringing and electrical noise in many power switching circuits, thus reducing power loss in the switching transistors.

Formerly developmental type TA49100.

Ordering Information

PART NUMBER	PACKAGE	BRAND
RHRG50120	TO-247	RHRG50120

NOTE: When ordering, use the entire part number.

Symbol

K

A

Features
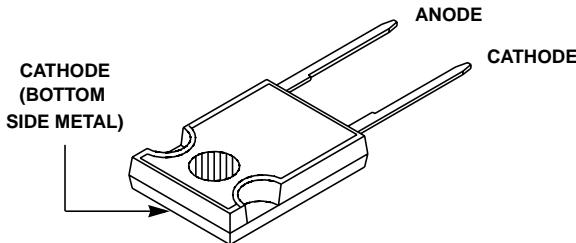
- Hyperfast with Soft Recovery . . . . <85ns
- Operating Temperature. . . . . .175°C
- Reverse Voltage 1200V
- Avalanche Energy Rated
- Planar Construction

Applications

- Switching Power Supplies
- Power Switching Circuits
- General Purpose

Packaging

JEDEC STYLE TO-247

ANODE

CATHODE

CATHODE
(BOTTOM
SIDE METAL)

Absolute Maximum Ratings T_C = 25°C, Unless Otherwise Specified

		RHRG50120	UNITS
Peak Repetitive Reverse Voltage.	V_{RRM}	1200	V
Working Peak Reverse Voltage	V_{RWM}	1200	V
DC Blocking Voltage	V_R	1200	V
Average Rectified Forward Current . . . . T_C = 50°C	$I_{F(AV)}$	50	A
Repetitive Peak Surge Current . . . . Square Wave, 20kHz	I_{FRM}	100	A
Nonrepetitive Peak Surge Current . . . . Halfwave, 1 Phase, 60Hz	I_{FSM}	500	A
Maximum Power Dissipation	P_D	150	W
Avalanche Energy (See Figures 10 and 11)	E_{AVL}	50	mJ
Operating and Storage Temperature	T_{STG}, T_J	-65 to 175	^{o}C

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

SYMBOL	TEST CONDITION	MIN	TYP	MAX	UNITS
V_F	$I_F = 50A$	-	-	3.2	V
	$I_F = 50A$, $T_C = 150^oC$	-	-	2.6	V
I_R	$V_R = 1200V$	-	-	500	µA
	$V_R = 1200V$, $T_C = 150^oC$	-	-	1.0	mA
t_{rr}	$I_F = 1A$, $dI_F/dt = 200A/µs$	-	-	85	ns
	$I_F = 50A$, $dI_F/dt = 200A/µs$	-	-	100	ns
t_a	$I_F = 50A$, $dI_F/dt = 200A/µs$	-	50	-	ns
t_b	$I_F = 50A$, $dI_F/dt = 200A/µs$	-	35	-	ns
Q_{RR}	$I_F = 50A$, $dI_F/dt = 200A/µs$	-	400	-	nC
C_J	$V_R = 10V$, $I_F = 0A$	-	150	-	pF
$R_{\theta JC}$		-	-	1.0	$^oC/W$

DEFINITIONS

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

I_R = Instantaneous reverse current.

t_{rr} = Re