YENYO

HFR30A12D

Glass Passivated Hyperfast Recovery Rectifier

Voltage Range 1200 V
Current 30.0 Ampere

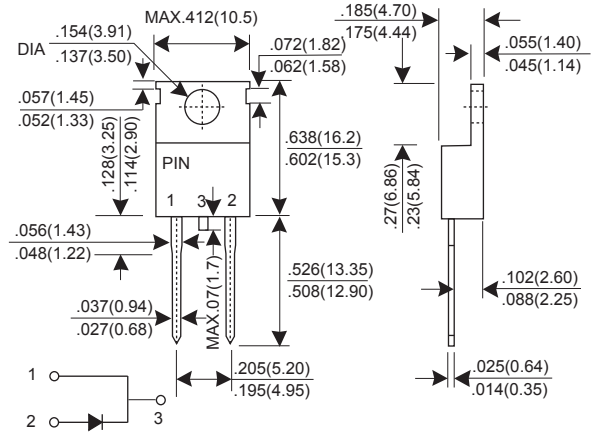
Features

- ✶ Fast switching for high efficiency
- ✶ Low noise
- ✶ Trr = 25ns
- ✶ Low reverse leakage current
- ✶ High voltage super FRD
- ✶ PFC application

Mechanical Data

- ✶ Case: Molded plastic TO-220AC
- ✶ Epoxy: UL 94V-0 rate flame retardant
- ✶ Terminals: Solderable per MIL-STD-202 method 208
- ✶ Mounting position: Any
- ✶ Weight: 2.07 grams

TO-220AC



Dimensions in inches and (millimeters)

Maximum Ratings $T_C = 25^\circ C$, Unless Otherwise Specified

Item	Symbol	Conditions	UNIT
Recurrent Peak Reverse Voltage	V_{RRM}	1200	V
RMS Voltage	V_{RMS}	840	V
DC Blocking Voltage	V_{DC}	1200	V
Average Forward Rectified Current T_C=140°C	$I_{F(AV)}$	30.0	A
Peak Forward Surge Current, 8.3ms single Half sine-wave superimposed on rated load (JEDEC method)	I_{FSM}	300	A
Maximum Power Dissipation	P_D	125	W
Pulse energy in avalanche mode, non repetitive (inductive load switch off) $I_{(BR)R}$ = 1A, T_J = 25 °C	E_R	30	mJ
Operating Junction and Storage Temperature Range	T_J, T_{STG}	-65 ~ +175	°C

Electrical/Thermal Characteristics $T_C = 25^\circ C$, Unless Otherwise Specified

Item	Symbol	Conditions	Min.	Typ.	Max.	UNIT
Instantaneous Forward Voltage	V_F	I_F = 30A	-	-	5.0	V
DC Reverse Current At Rated DC Blocking Voltage	I_R	V_R = 1200V V_R = 1200V T_J=150°C	-	-	20.0 500	uA uA
Maximum Reverse Recovery Time	Trr	I_F = 0.5A, I_R = 1.0A, Irr = 0.25A	-	-	25	nS
		I_F = 30A, dI_F/dt = 100A/us	-	-	85	nS
Typical junction Capacitance	C_J	V_R = 10V, I_F = 0A	-	25	-	pF
Typical Thermal Resistance	$R_{\theta JC}$	Junction to Case	-	-	2	°CW

RATINGS AND CHARACTERISTIC CURVES HFR30A12D

FIG.1 - FORWARD CURRENT DERATING CURVE

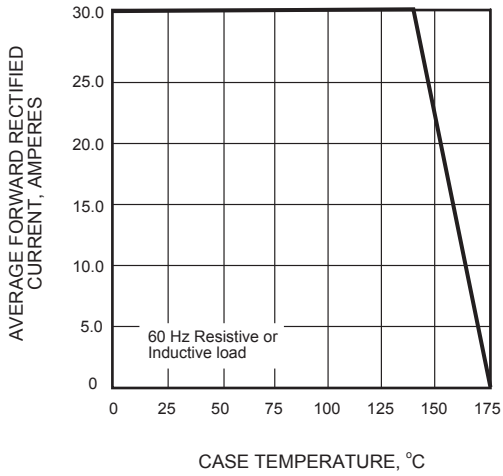


FIG.2 - MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

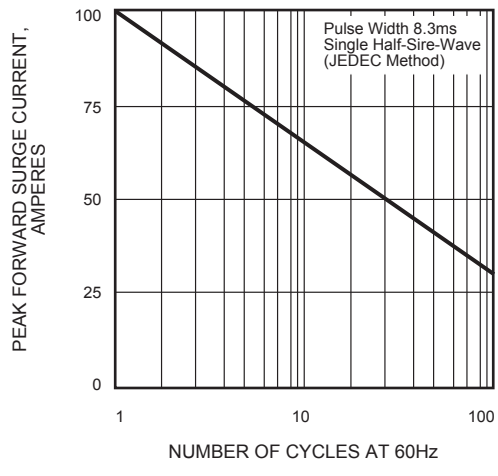


FIG.3 - TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

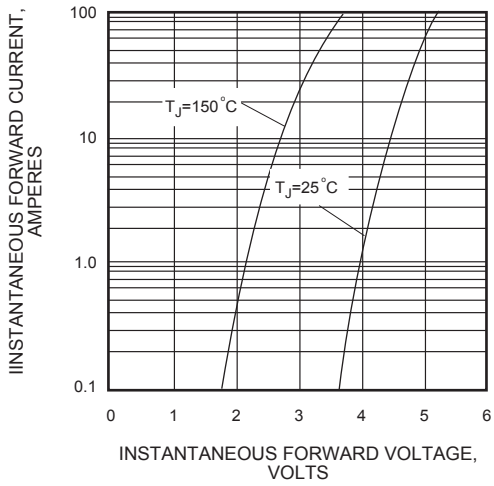


FIG.4 - TYPICAL REVERSE CHARACTERISTICS

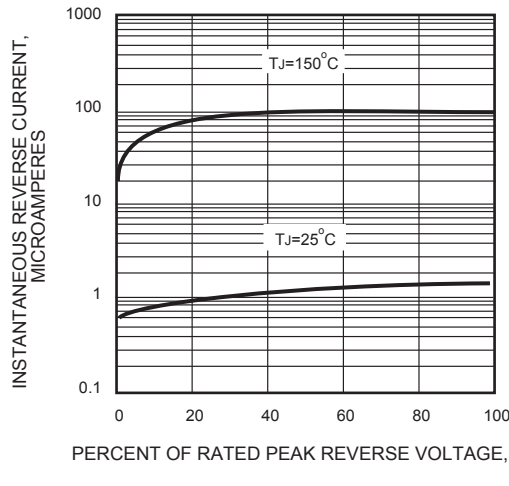
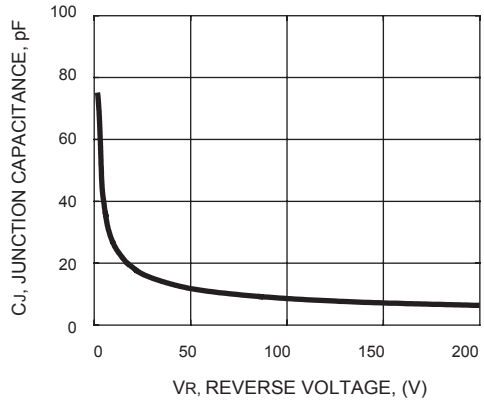


FIG.5 - JUNCTION CAPACITANCE VS REVERSE VOLTAGE



Test Circuits and Waveforms

FIG.6 - t_{rr} TEST CIRCUIT

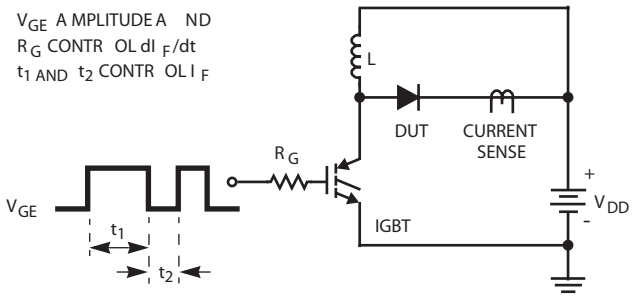


FIG. 7 - t_{rr} WAVEFORMS AND DEFINITIONS

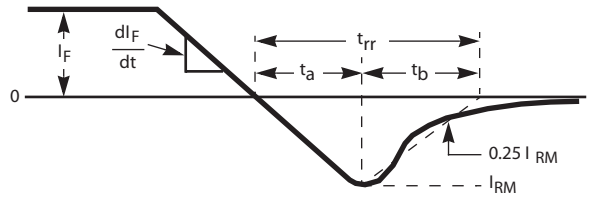


FIG. 8 - AVALANCHE ENERGY TEST CIRCUIT

I_{MAX} = 1A
L = 40mH
R < 0.1
$E_{AV L} = 1/2LI^2 [V_{R(A VL)} /(V_{R(A VL)} - V_{DD})]$
Q_1 = IGBT (BV $_{CES}$ > DUT $V_{R(A VL)}$)

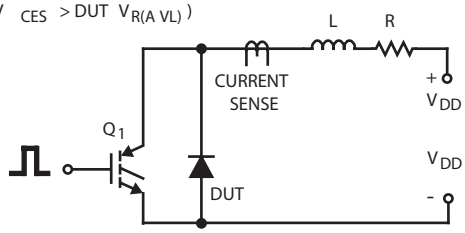


FIG. 9 - AVALANCHE CURRENT AND VOLTAGE WAVEFORMS