YENYO

HFR30A06P

Glass Passivated Hyperfast Recovery Rectifier

Voltage Range 600 V
Current 30.0 Ampere

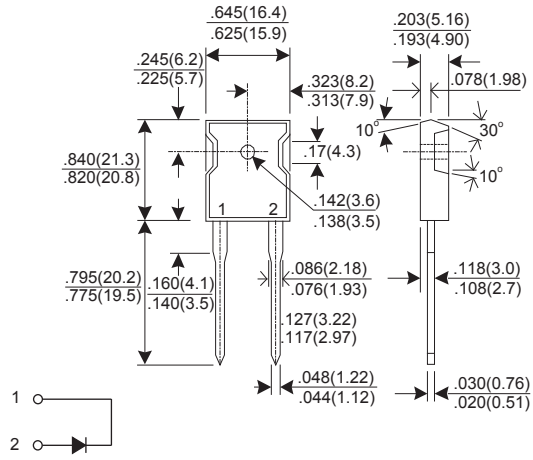
Features

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

Mechanical Data

- ✶ Case: Molded plastic TO-3P
- ✶ Epoxy: UL 94V-0 rate flame retardant ,
- ✶ Terminals: Solderable per MIL-STD-202 method 208
- ✶ Mounting position: Any
- ✶ Weight: 6.2 grams

TO-3P



Dimensions in inches and (millimeters)

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Rating at 25°C ambient temperature unless otherwise specified.
Single phase, half wave, 60Hz, resistive or inductive load.
For capacitive load, derate current by 20%.

CHARACTERISTIC	SYMBOL	HFR30A06P			UNIT
		Min.	Typ.	Max.	
Recurrent Peak Reverse Voltage	V_{RRM}	-	-	600	V
RMS Voltage	V_{RMS}	-	-	420	V
DC Blocking Voltage	V_{DC}	-	-	600	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}	-	-	325	A
Instantaneous Forward Voltage @30A(25°C) @30A(150°C)	V_F	-	-	2.5 2.2	V
DC Reverse Current @T_J=25°C At Rated DC Blocking Voltage @T_J=150°C	I_R	-	-	20 500	uA uA
Maximum Reverse Recovery Time (Note 1)	Trr	-	-	40	nS
Maximum Reverse Recovery Time (Note 2)	Trr	-	-	65	nS
Typical junction Capacitance (Note 3)	C_J	-	60	-	pF
Typical Thermal Resistance (Note 4)	$R_{\theta JC}$	-	-	1.2	°CW
Operating Junction and Storage Temperature Range	T_J, T_{STG}	-65	-	175	°C

NOTES : (1) Reverse recovery test conditions I_F = 0.5A, I_R = 1.0A, Irr = 0.25A.
(2) Reverse recovery test conditions I_F = 15A, di$_F$/dt = 100A/us
(3) Junction Capacitance test conditions : V_R = 10V,I_F = 0A.
(4) Thermal Resistance junction to case.

RATINGS AND CHARACTERISTIC CURVES HFR30A06P

FIG.1 - FORWARD CURRENT DERATING CURVE

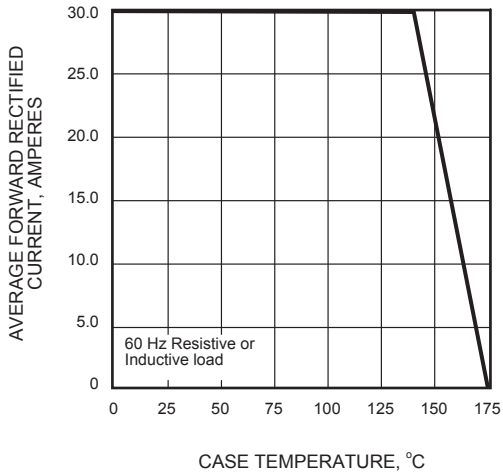


FIG.2 - MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

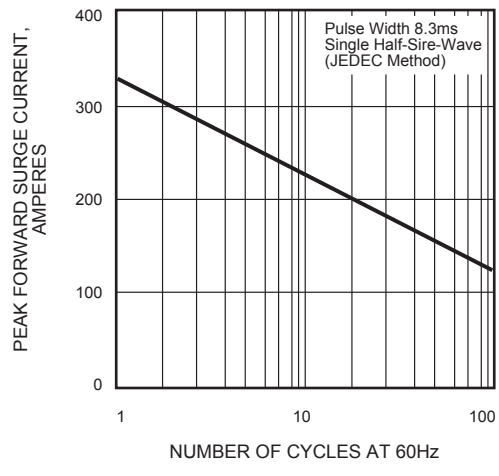


FIG.3 - TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

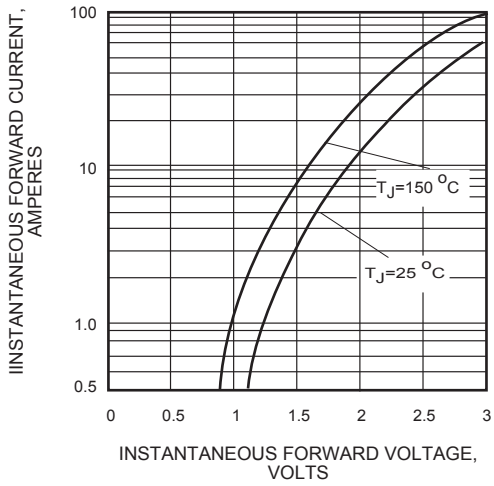


FIG.4 - TYPICAL REVERSE CHARACTERISTICS

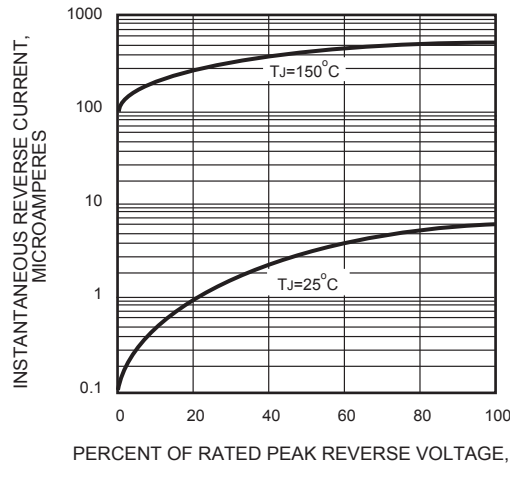


FIG.5 - T_{rr} , t_a AND t_b CURVES vs FORWARD CURRENT

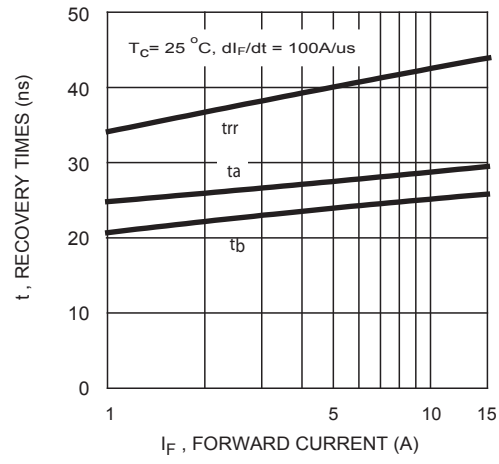
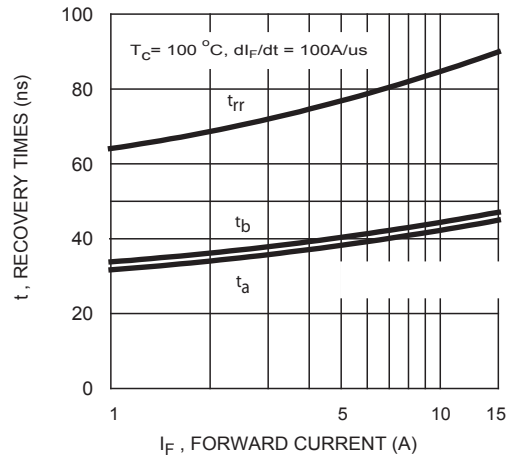


FIG.6 - T_{rr} , t_a AND t_b CURVES vs FORWARD CURRENT



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RATINGS AND CHARACTERISTIC CURVES HFR30A06P

FIG.7 - T_{rr} , t_a AND t_b CURVES vs FORWARD CURRENT

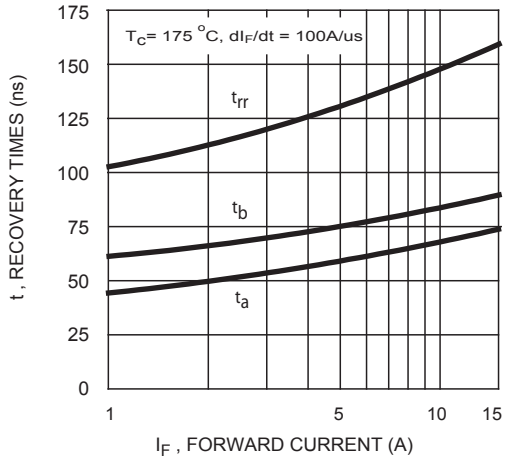
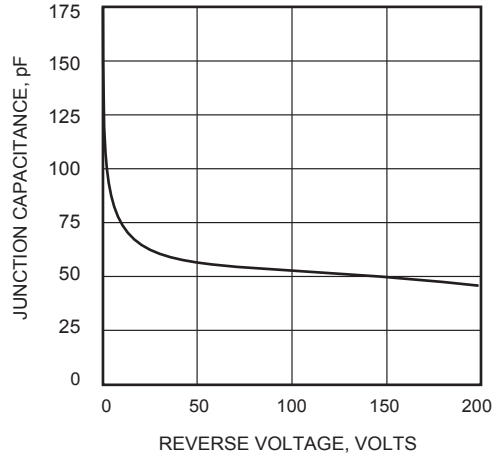


FIG.8 - TYPICAL JUNCTION CAPACITANCE



Test Circuits and Waveforms

FIG.9 - t_{rr} TEST CIRCUIT

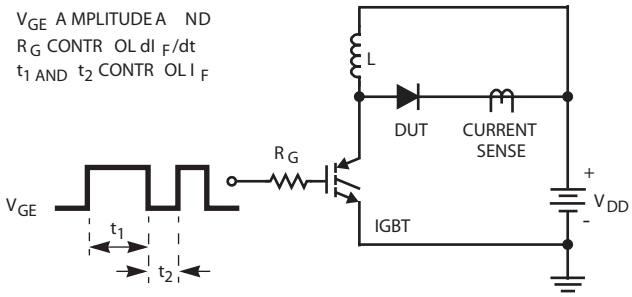


FIG.10 - t_{rr} WAVEFORMS AND DEFINITIONS

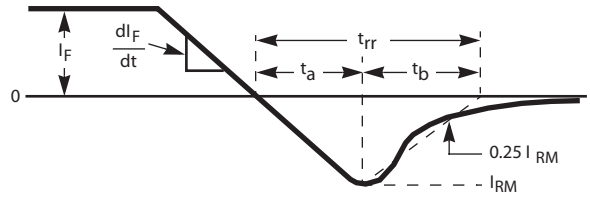


FIG.11 - AVALANCHE ENERGY TEST CIRCUIT

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

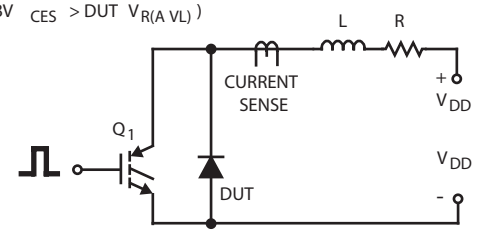


FIG. 12 - AVALANCHE CURRENT AND VOLTAGE WAVEFORMS