Target Data 05/01

International
IOR Rectifier

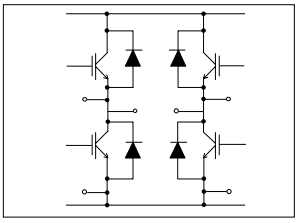
25MT060WF

"FULL-BRIDGE" IGBT MTP

Warp Speed IGBT

Features

- Gen. 4 Warp Speed IGBT Technology
- HEXFRED™ Antiparallel Diodes with UltraSoft Reverse Recovery
- Very Low Conduction and Switching Losses
- Optional SMT Thermystor Inside
- Aluminum Nitride DBC
- Very Low Stray Inductance Design for High Speed Operation



V_{CES} = 600V

$V_{CE(on)\ typ.}$ = 2.2V @

V_{GE} = 15V, I_C = 25A

T_C = 25°C

Benefits

- Optimized for Welding, UPS and SMPS Applications
- Operating Frequencies > 20 kHz Hard Switching, >200 kHz Resonant Mode
- Low EMI, requires Less Snubbing
- Direct Mounting to Heatsink
- PCB Solderable Terminals
- Very Low Junction-to-Case Thermal Resistance

Absolute Maximum Ratings

	Parameters		Max	Units
V_{CES}	Collector-to-Emitter Voltage		600	V
I_C	Continuos Collector Current	@ T_C = 25°C	50	A
		@ T_C = 100°C	25	
I_{CM}	Pulsed Collector Current		200	
I_{LM}	Peak Switching Current		200	
I_F	Diode Continuous Forward Current	@ T_C = 100°C	25	
I_{FM}	Peak Diode Forward Current		200	
V_{GE}	Gate-to-Emitter Voltage		± 20	V
V_{ISOL}	RMS Isolation Voltage, Any Terminal to Case, t = 1 min		2500	
P_D	Maximum Power Dissipation	@ T_C = 25°C	900	W
		@ T_C = 100°C	400	

Electrical Characteristics @ T_J = 25°C (unless otherwise specified)

	Parameters	Min	Typ	Max	Units	Test Conditions
$V_{(BR)CES}$	Collector-to-Emitter Breakdown Voltage	600			V	V_{GE} = 0V, I_C = 250µA
$V_{CE(on)}$	Collector-to-Emitter Voltage		1.85			V_{GE} = 15V, I_C = 25A
			1.7			V_{GE} = 15V, I_C = 25A, T_J = 150°C
$V_{GE(th)}$	Gate Threshold Voltage	3		6		I_C = 250µA
$\Delta V_{GE(th)}/\Delta T_J$	Temperature Coeff. of Threshold Voltage		-		mV/°C	V_{GE} = V_{CE}, I_C = 500µA
g_{fe}	Forward Transconductance		40		S	V_{CE} = 100V, I_C = 25A
I_{CES}	Collector-to-Emiter Leaking Current			250	µA	V_{GE} = 0V, V_{CE} = 600V
				5000		V_{GE} = 0V, V_{CE} = 600V, T_J = 150°C
V_{FM}	Diode Forward Voltage Drop		1.3		V	I_F = 25A, V_{GE} = 0V
			1.2			I_F = 25A, V_{GE} = 0V, T_J = 150°C
I_{GES}	Gate-to-Emitter Leakage Current			± 100	nA	V_{GE} = ± 20V

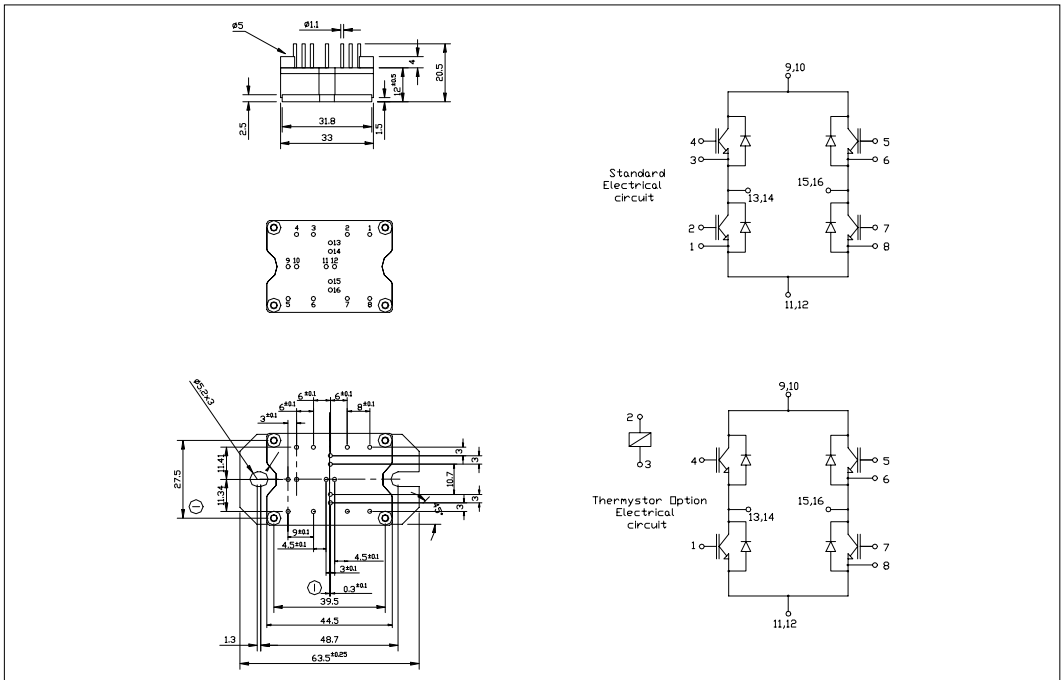
Switching Characteristics @ T_J = 25°C (unless otherwise specified)

	Parameters	Min	Typ	Max	Units	Test Conditions
Q_g	Total Gate Charge (turn-on)		180		nC	I_C = 25A
Q_{ge}	Gate-Emitter Charge (turn-on)		25			V_{CC} = 400V
Q_{gc}	Gate-Collector Charge (turn-on)		63			V_{GE} = 15V
E_{on}	Turn-On Switching Loss		950		µJ	R_{g1} = R_{g2} = 5Ω , I_C = 25A
$E_{off(1)}$	Turn-Off Switching Loss		320			V_{CC} = 480V
$E_{ts(1)}$	Total Switching Loss		1270			V_{GE} = ±15V
C_{ies}	Input Capacitance		4000		pF	V_{GE} = 0V
C_{oes}	Output Capacitance		260			V_{CC} = 30V
C_{res}	Reverse Transfer Capacitance		68			f = 1.0 MHz
trr	Diode Reverse Recovery Time		50		ns	V_R = 200V, I_C = 25A
Irr	Diode Peak Reverse Current		4.5		A	di/dt = 200A/µs
Qrr	Diode Recovery Charge		112		nC	
$di_{(rec)M}/dt$	Diode Peak Rate of Fall of Recovery During t_b		250		A/µs	

Thermal- Mechanical Specifications

	Parameters		Min	Typ	Max	Units
T_J	Operating Junction Temperature Range		- 40		150	°C
T_{STG}	Storage Temperature Range		- 40		125	
R_{thJC}	Junction-to-Case	IGBT			0.7	°C/ W
		Diode			0.9	
R_{thCS}	Case-to-Sink	Module		0.06		
	(Heatsink Compound Thermal Conductivity = 1 W/mK)					
	Weight			66		g

Outline Table



Data and specifications subject to change without notice.
This product has been designed for Industrial Level.
Qualification Standards can be found on IR's Web site.

International
IOR Rectifier

IR WORLD HEADQUARTERS: 233 Kansas St., El Segundo, California 90245, USA Tel: (310) 252-7105
TAC Fax: (310) 252-7309
Visit us at www.irf.com for sales contact information. 05/01