International
IOR Rectifier

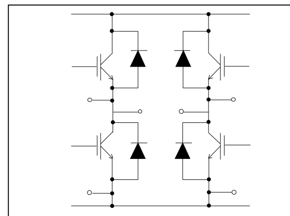
25MT060WF

"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 (Heatsink Compound Thermal Conductivity = 1 W/mK)	Module		0.06		
	Weight			66		g

Outline Table

Dimensions in millimeters

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.

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