

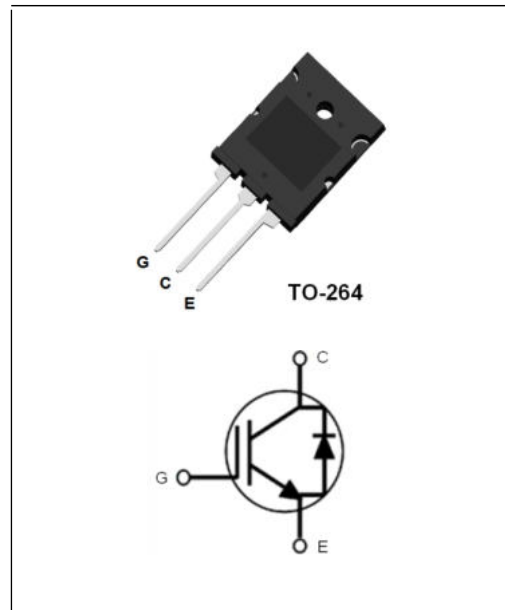
1200V 75A NPT IGBT

Description

The device is designed by advanced NPT technology process. This IGBT offer low conduction and switching losses. This IGBT have excellent quality for application such as UPS, inverter, AC&DC motor controls and other switching applications.

Features

- NPT Technology
- $V_{CE(sat)}=3.0V@I_C=75A$
- $t_{rr}=67ns$ (typ.)
- High Speed Switching & Low Power Loss
- High Input Impedance



Applications

- UPS, Inverter, Welder, AC&DC motor controls

Absolute Maximum Ratings

Symbol	Parameter	Ratings	Unit	
V_{CES}	Collector to Emitter Voltage	1200	V	
V_{GES}	Gate to Emitter Voltage	± 20	V	
I_C	Collector Current	$T_C=25^\circ C$	120	A
		$T_C=100^\circ C$	75	A
I_{CM}	Pulsed Collector Current	225	A	
I_F	Diode Continuous Forward Current	$T_C=100^\circ C$	30	A
I_{FM}	Diode Maximum Forward Current	180	A	
P_D	Maximum Power Dissipation	$T_C=25^\circ C$	480	W
		$T_C=100^\circ C$	190	W
T_J	Operating Junction Temperature Range	-55~+150	$^\circ C$	
T_{STG}	Storage Temperature Range	-55~+150	$^\circ C$	

Thermal Characteristics

Symbol	Parameter	Ratings	Unit
$R_{th(J-C)}$ (IGBT)	Thermal Resistance, Junction to case for IGBT	0.26	$^\circ C/W$
$R_{th(J-C)}$ (Diode)	Thermal Resistance, Junction to case for Diode	0.65	$^\circ C/W$
$R_{th(J-A)}$	Thermal Resistance, Junction to Ambient	26	$^\circ C/W$

Electrical Characteristics of IGBT @ $T_C=25\text{ }^\circ\text{C}$ unless otherwise noted

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
BV_{CES}	Collector to Emitter Breakdown Voltage	$V_{GE}=0V, I_C=250\mu A$	1200	-	-	V
$V_{CE(sat)}$	Collector to Emitter Saturation Voltage	$I_C=75A, V_{GE}=15V$	-	3.0	-	V
		$I_C=75A, V_{GE}=15V, T_C=125\text{ }^\circ\text{C}$	-	4.2	-	V
$V_{GE(th)}$	Gate Threshold Voltage	$V_{CE}=V_{GE}, I_C=250\mu A$	4.5	5.8	6.8	V
I_{CES}	Zero Gate Voltage Collector Current	$V_{CE}=V_{CES}, V_{GE}=0V$	-	-	1	mA
I_{GES}	Gate to Emitter Leakage Current	$V_{GE}=V_{GES}, V_{CE}=0V$	-	-	± 250	nA

Electrical Characteristics of Diode @ $T_C=25\text{ }^\circ\text{C}$ unless otherwise noted

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
V_F	Diode Forward Voltage	$I_F=30A$	-	2.7	4.0	V
		$I_F=30A, T_C=125\text{ }^\circ\text{C}$	-	2.0	-	V
t_{rr}	Diode Reverse Recovery Time	$I_F=30A, di/dt=-220A/\mu s$	-	67	-	ns
I_{rr}	Diode Peak Reverse Recovery Current		-	8.0	-	A
Q_{rr}	Diode Reverse Recovery Charge		-	185	-	nC

Switching Characteristics @ $T_C=25\text{ }^\circ\text{C}$ unless otherwise noted

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit	
$t_{d(on)}$	Turn-on Delay Time	$I_C=75A, V_{CC}=600V, V_{GE}=15V, R_G=14\Omega$ Inductive Load, $T_C=25\text{ }^\circ\text{C}$	-	50	-	ns	
t_r	Rising Time		-	158	-	ns	
$t_{d(off)}$	Turn-off Delay Time		-	242	-	ns	
t_f	Falling Time		-	30	-	ns	
E_{on}	Turn-on Switching Loss		-	6.3	-	mJ	
E_{off}	Turn-off Switching Loss		-	1.2	-	mJ	
E_{ts}	Total Switching Loss		-	7.5	-	mJ	
$t_{d(on)}$	Turn-on Delay Time		$I_C=75A, V_{CC}=600V, V_{GE}=15V, R_G=14\Omega$ Inductive Load, $T_C=125\text{ }^\circ\text{C}$	-	49	-	ns
t_r	Rising Time			-	150	-	ns
$t_{d(off)}$	Turn-off Delay Time			-	263	-	ns
t_f	Falling Time	-		48	-	ns	
E_{on}	Turn-on Switching Loss	-		8.4	-	mJ	
E_{off}	Turn-off Switching Loss	-		2.9	-	mJ	
E_{ts}	Total Switching Loss	-		11.3	-	mJ	
C_{ies}	Input Capacitance	$V_{GE}=0V, V_{CE}=30V, f=1.0MHz$	-	8330	-	pF	
C_{res}	Reverse Transfer Capacitance		-	140	-	pF	
C_{oes}	Output Capacitance		-	320	-	pF	
Q_g	Total Gate Charge	$I_C=75A, V_{CC}=600V, V_{GE}=15V$	-	37	-	nC	
Q_{ge}	Gate to Emitter Charge		-	160	-	nC	
Q_{gc}	Gate to Collector Charge		-	332	-	nC	
t_{sc}	Short Circuit Withstand Time		$V_{CC}=600V, V_{GE}=15V$	10	-	-	us

Package Dimensions

TO-264

(Dimensions in Millimeters)

