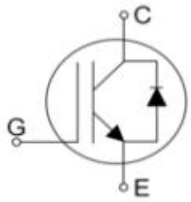
LEGP75N120FH

IGBT Discrete

Features:

- 1200V/75A Trench Field Stop IGBT
- High breakdown voltage up to 1200V for improved reliability
- Trench-Stop Technology offering :
  - Low $V_{CE(sat)}$
  - Very tight parameter distribution
  - Short circuit withstand time – 10μs
  - High ruggedness, temperature stable
  - Easy parallel switching capability due to positive temperature coefficient in $V_{CE(sat)}$
- Enhanced avalanche capability

V_{CE}	1200	V
I_C	75	A
$V_{CE(sat)}$ @I_C=75A	1.7	V



Applications:

- Motor control and drives
- Inverter
- Three-level Solar String Inverter

TO-264-3L

Maximum Rated Values (T_j= 25℃ unless otherwise specified)

Symbol	Parameter	Conditions	Ratings	Unit
V_{CE}	Collector-emitter voltage		1200	V
I_C	Continuous Collector Current	T_C=25 ℃	150	A
		T_C=100 ℃	75	A
I_F	Diode Forward current	T_C=25 ℃	120	A
		T_C=100 ℃	75	A
V_{GE}	Continuous Gate-emitter voltage		±20	V
V_{GE}	Transient Gate-emitter voltage		±30	V
I_{CM}	Pulsed Collector Current	V_{GE}=15V,tp limited by T_{jmax}	200	A
I_{Fplus}	Diode Pulsed Current	tp limited by T_{jmax}	200	A
T_{sc}	Short Circuit Withstand Time	V_{GE}=15V, V_{CE}≤600V	10	μs
P_{tot}	Total Power Dissipation	T_j=25 ℃	750	W
T_j	Operating Junction Temperature		-40...+150	℃
T_{stg}	Storage Temperature		-55...+150	℃
-	Soldering temperature	wave soldering 1.6mm (0.063in.) from case for 10s	260	℃

Thermal Resistance

Symbol	Parameter	Ratings	Unit
$R_{θ(j-c)}$	IGBT thermal resistance, junction - case	0.3	K/W
$R_{θ(j-c)}$	Diode thermal resistance, junction - case	0.6	K/W
$R_{θ(j-a)}$	Thermal resistance, junction - ambient	40	K/W

Characteristics Values of the IGBT (T_j= 25℃ unless otherwise specified)

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	I_C=75 A, V_{GE}=15 V, T_{vj}=25 ℃		1.7	2.3	V
		I_C=75 A, V_{GE}=15 V, T_{vj}=150 ℃		2.3		V
$V_{GE(th)}$	Gate Threshold Voltage	I_C=5.0 mA,V_{CE}=V_{GE},T_{vj}= 25 ℃	5.2	6.2	6.5	V
I_{CES}	Collector-Emitter Cut-off Current	V_{CE}=1200 V, V_{GE}=0 V, T_{vj}=25 ℃			20	μA
I_{GES}	Gate-Emitter Leakage Current	V_{CE}=0 V, V_{GE}=15 V, T_{vj}=25 ℃			200	nA
r_G	Integrated gate resister		-	3.1	-	Ω
C_{ies}	Input Capacitance	V_{CE} = 25V, V_{GE} = 0V, f = 1MHZ	-	6.68	-	nF
C_{oes}	Output Capacitance		-	0.36	-	nF
C_{res}	Reverse Transfer Capacitance		-	220	-	pF
$t_{d(on)}$	Turn-on Delay Time, Inductive Load	I_C= 75 A,V_{CE}= 600 V V_{GE} =±15 V R_G = 2Ω T_{vj} = 25 ℃		66		ns
t_r	Rise Time, Inductive Load			35		ns
$t_{d(off)}$	Turn-off Delay Time, Inductive Load			270		ns
t_f	Fall Time, Inductive Load			170		ns
E_{on}	Turn-on Energy Loss per Pulse			2.3		mJ
E_{off}	Energy Loss per Pulse			6.4		mJ
$t_{d(on)}$	Turn-on Delay Time, Inductive Load	I_C = 75 A,V_{CE} = 600 V V_{GE} = ±15 V R_G = 2 Ω T_{vj}= 150 ℃		720		ns
t_r	Rise Time, Inductive Load			32		ns
$t_{d(off)}$	Turn-off Delay Time, Inductive Load			335		ns
t_f	Fall Time, Inductive Load			276		ns
E_{on}	Turn-on Energy Loss per Pulse			2.7		mJ
E_{off}	Energy Loss per Pulse			7.3		mJ
I_{SC}	SC data	V_{GE} ≤15 V, V_{CC} = 900 V V_{CEmax} = V_{CES} -L_{sCE} ·di/dt t_P ≤ 10 μs, T_{vj} = 150 ℃		350		A

Characteristics Values of the Diode (T_j= 25℃ unless otherwise specified)

Symbol	Parameter	Conditions		Min.	Typ.	Max.	Unit
V_F	Forward Voltage	I_F=75 A	T_j= 25℃	-	1.7	-	V
			T_j= 150℃		2.5		V
t_{rr}	Reverse Recovery time	I_F=75A,V_R=600 V di/dt =500A/μs T_j= 25℃		-	181	-	ns
I_{rr}	Reverse Recovery Current			-	15	-	A
Q_{rr}	Reverse Recovery Charge			-	2.9	-	μC
E_{rec}	Eeverse Recovery Energy			-	1.55	-	mJ
t_{rr}	Reverse Recovery time	I_F=75A,V_R=600 V di/dt =500A/μs T_j= 25℃		-	286	-	ns
I_{rr}	Reverse Recovery Current			-	21	-	A
Q_{rr}	Reverse Recovery Charge			-	5.85	-	μC
E_{rec}	Eeverse Recovery Energy			-	3.32	-	mJ

Package Dimensions

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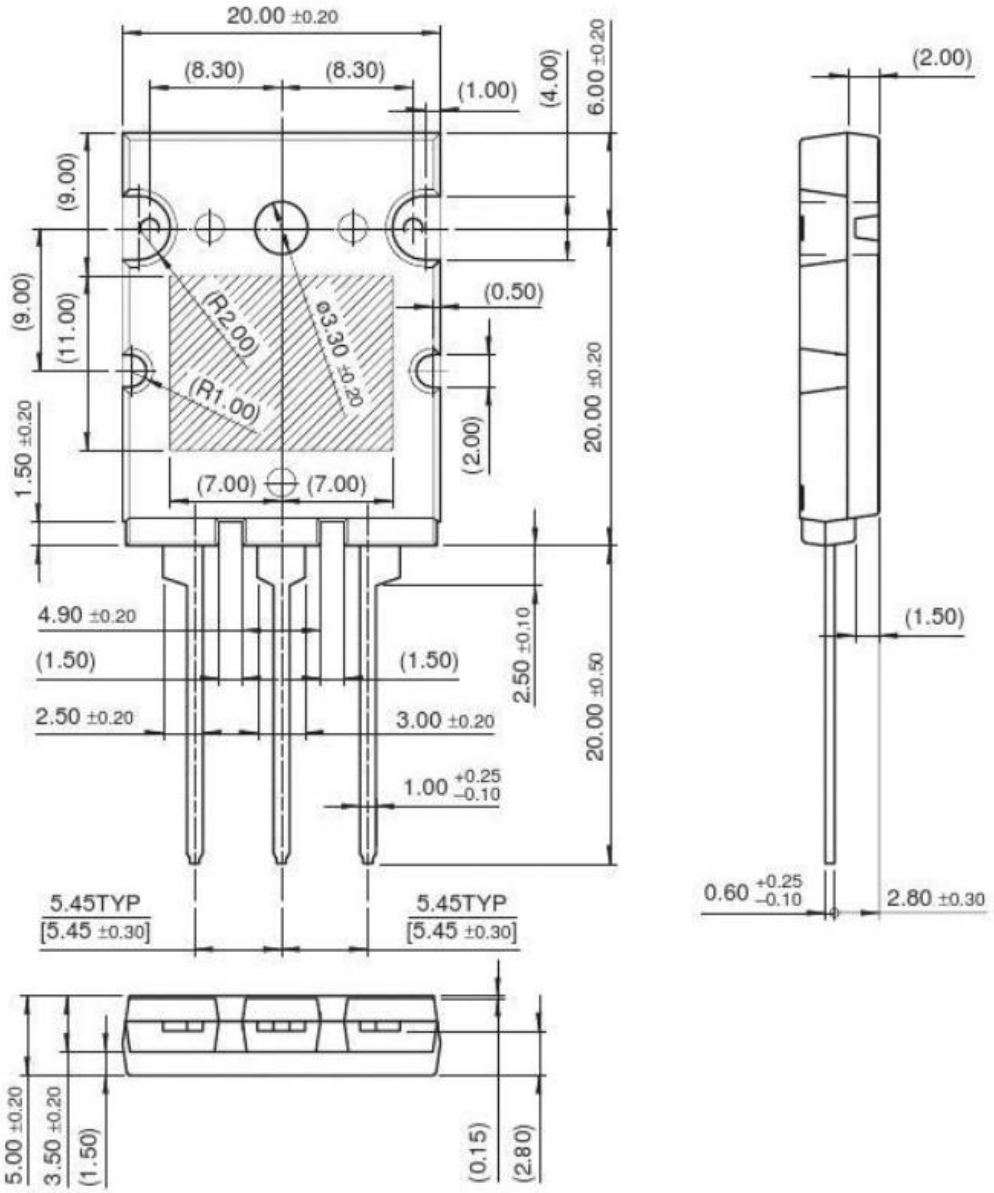

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