

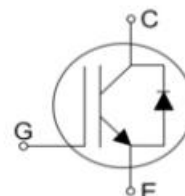
LEGP75N120FHDF

IGBT Discrete

Features:

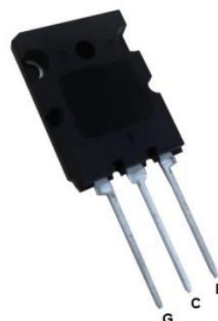
- 1200V/75A Trench Field Stop IGBT
- High breakdown voltage up to 1200V for improved reliability
- Trench-Stop Technology offering :
 - Low $V_{CE(sat)}$
 - Very tight parameter distribution
 - Short circuit withstand time – 10 μ s
 - High ruggedness, temperature stable
 - Easy parallel switching capability 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 ($T_J = 25^\circ\text{C}$ unless otherwise specified)

Symbol	Parameter	Conditions	Ratings	Unit
V_{CE}	Collector-emitter voltage		1200	V
I_C	Continuous Collector Current	$T_C = 25^\circ\text{C}$	150	A
		$T_C = 100^\circ\text{C}$	75	A
I_F	Diode Forward current	$T_C = 25^\circ\text{C}$	120	A
		$T_C = 100^\circ\text{C}$	75	A
V_{GE}	Continuous Gate-emitter voltage		± 20	V
V_{GE}	Transient Gate-emitter voltage		± 30	V
I_{CM}	Pulsed Collector Current	$V_{GE} = 15\text{V}$, 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	$V_{GE} = 15\text{V}$, $V_{CE} \leq 600\text{V}$	10	μs
P_{tot}	Total Power Dissipation	$T_J = 25^\circ\text{C}$	750	W
T_J	Operating Junction Temperature		$-40 \dots +150$	$^\circ\text{C}$
T_{stg}	Storage Temperature		$-55 \dots +150$	$^\circ\text{C}$
-	Soldering temperature	wave soldering 1.6mm (0.063in.) from case for 10s	260	$^\circ\text{C}$

Thermal Resistance

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

Characteristics Values of the IGBT ($T_j = 25^\circ\text{C}$ unless otherwise specified)

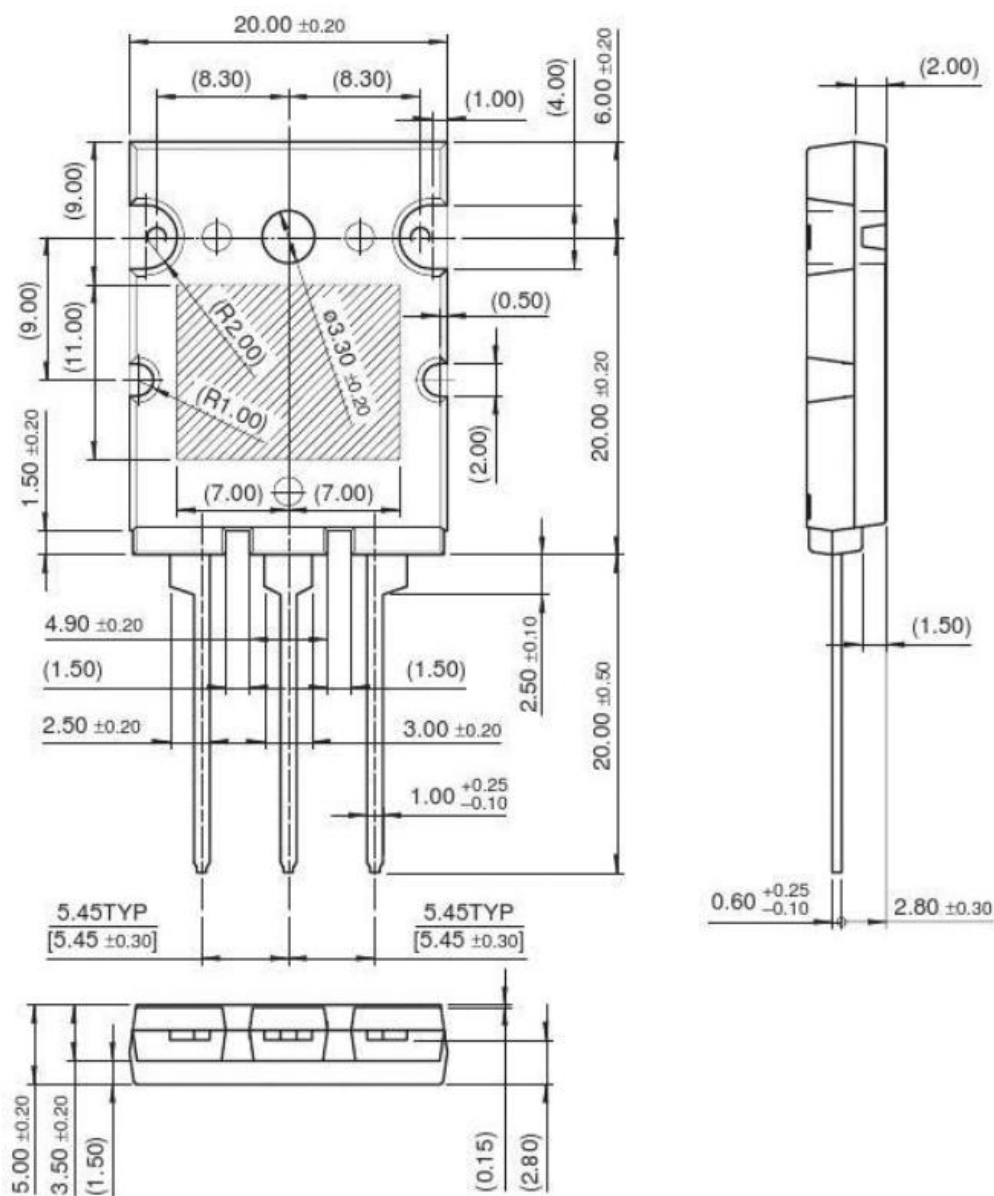
Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	$I_C=75\text{A}, V_{GE}=15\text{V}, T_j=25^\circ\text{C}$	-	1.7	2.25	V
		$I_C=75\text{A}, V_{GE}=15\text{V}, T_j=150^\circ\text{C}$	-	2.05	2.7	V
$V_{GE(th)}$	Gate Threshold Voltage	$I_C = 5.0\text{mA}, V_{CE}=V_{GE}$	5.2	6.0	6.5	V
I_{CES}	Collector-Emitter Cut-off Current	$V_{CE}=1200\text{V}, V_{GE}=0\text{V}, T_j=25^\circ\text{C}$	-	-	20	μA
I_{GES}	Gate-Emitter Leakage Current	$V_{CE}=0\text{V}, V_{GE}=\pm 20\text{V}$			200	nA
C_{ies}	Input Capacitance	$V_{GE} = 0\text{V}, V_{CE} = 25\text{V},$ $f = 1\text{MHz}$	-	5.19		nF
C_{res}	Reverse Transfer Capacitance		-	189		pF
$t_{d(on)}$	Turn-on Delay Time	$I_C=75\text{A}, V_{CC}=600\text{V}$ $V_{GE}=\pm 15\text{V}$ $R_g=15\Omega$ $T_j=25^\circ\text{C}$	-	76		ns
t_r	Rise Time		-	62		ns
$t_{d(off)}$	Turn-off Delay Time		-	278		ns
t_f	Fall Time		-	196		ns
E_{on}	Turn-on Energy Loss		-	5.2		mJ
E_{off}	Turn-off Energy Loss		-	3.1		mJ
$t_{d(on)}$	Turn-on Delay Time	$I_C=75\text{A}, V_{CC}=600\text{V}$ $V_{GE}=\pm 15\text{V}$ $R_g=15\Omega$ $T_j=150^\circ\text{C}$	-	114		ns
t_r	Rise Time		-	93		ns
$t_{d(off)}$	Turn-off Delay Time		-	417		ns
t_f	Fall Time		-	294		ns
E_{on}	Turn-on Energy Loss		-	7.8		mJ
E_{off}	Turn-off Energy Loss		-	4.65		mJ
$I_{C(sc)}$	Short Circuit Collector Current	$V_{GE}=15\text{V}, t_{sc}\leq 10\mu\text{s}, V_{CC}=600\text{V},$ $T_{j, start}=25^\circ\text{C}$	-	350	-	A

Characteristics Values of the Diode ($T_j = 25^\circ\text{C}$ unless otherwise specified)

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
V_F	Forward Voltage	$I_F = 75\text{ A}$	-	1.7	-	V
t_{rr}	Reverse Recovery time	$I_F = 75\text{ A}, V_R = 600\text{ V}$ $di/dt = 100\text{ A}/\mu\text{s}$	-	181	-	ns
I_{rr}	Reverse Recovery Current		-	35	-	A
Q_{rr}	Reverse Recovery Charge		-	0.98	-	μC

Package Dimensions

TO-264-3L



DISCLAIMER

ALL PRODUCT, PRODUCT SPECIFICATIONS AND DATA ARE SUBJECT TO CHANGE WITHOUT NOTICE
TO IMPROVE RELIABILITY, FUNCTION OR DESIGN OR OTHERWISE