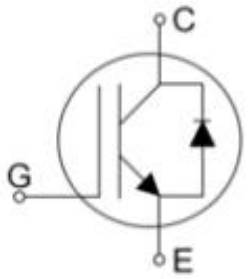
LEGP25N65AH

IGBT Discrete

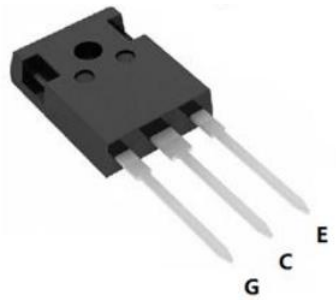
Features:

- 650V/25A Trench Field Stop IGBT
- High breakdown voltage up to 650V for improved reliability
- Trench-Stop Technology offering :
  - Low $V_{CE(sat)}$
  - High speed switching
  - Low switching losses
  - High ruggedness, temperature stable
  - Easy parallel switching capability due to positive temperature coefficient in $V_{CE(sat)}$
- Converter with high switching frequency



Applications:

- Soft switching applications
- Air conditioning
- Motor drive inverter



Type	V_{CE}	I_C	$V_{CE(sat)}$ @I_C=25A	Marking	Package
LEGP25N65AH	650V	25A	1.59 V	GP25N65AH	TO-247-3L

Maximum Rated Values

Symbol	Parameter	Conditions	Ratings	Unit
V_{CES}	Collector-emitter voltage	T_{vj}=25℃	650	V
I_C	Continuous Collector Current	T_C=25℃	50	A
		T_C=100℃	25	A
I_F	Diode Forward current	T_C=25℃	16	A
		T_C=100℃	8	A
V_{GE}	Gate-Emitter Voltage		±20	V
V_{GE}	Transient Gate-Emitter Voltage		±30	V
I_{CRM}	Pulsed Collector Current		100	A
I_{Fplus}	Diode Pulsed Current		32	A
T_{sc}	Short Circuit Withstand Time	V_{GE}= 15V, V_{CE}= 400V	5	μs
P_{tot}	Total Power Dissipation	T_C=25℃	214	W
T_{vj}	Operating Junction Temperature	Operating Junction Temperature	-55...+175	℃
T_{stg}	Storage Temperature	Storage Temperature	-55...+150	℃
	Soldering temperature	wave soldering 1.6mm (0.063in.) from case for 10s	260	℃

Thermal Resistance

Symbol	Parameter	Ratings	Unit
$R_{\theta(j-c)}$	IGBT thermal resistance, junction - case	0.7	K/W
$R_{\theta(j-a)}$	Thermal resistance, junction - ambient	40	K/W

Characteristics Values of the IGBT

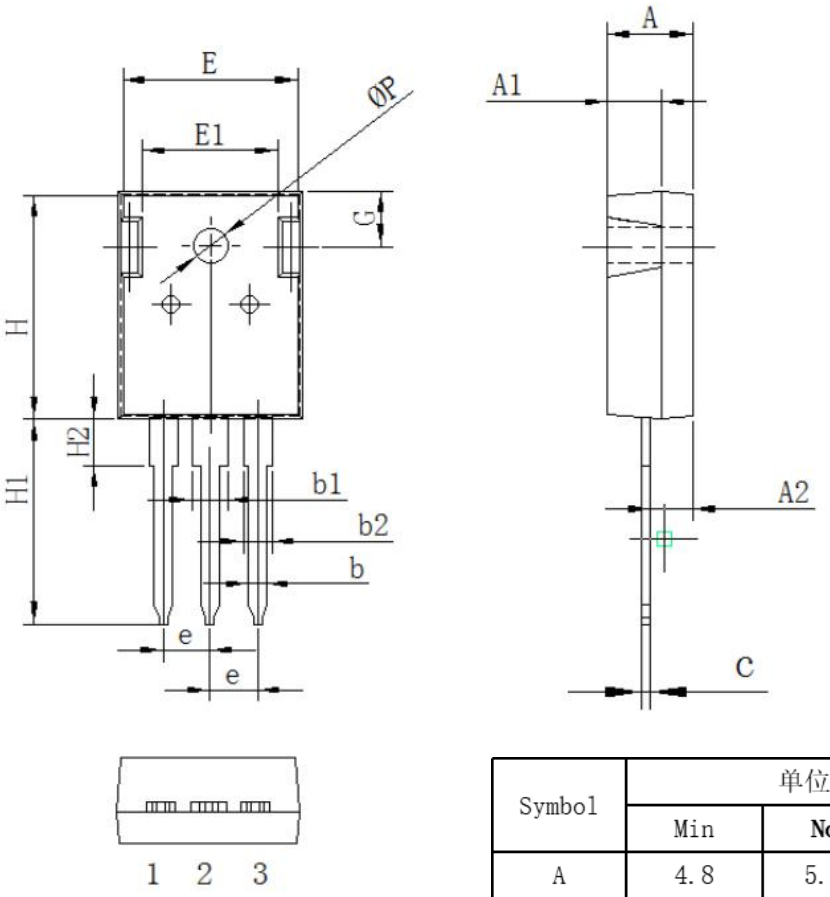
Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
BV_{CES}	Collector-Emitter Breakdown Voltage	V_{GE} = 0V, I_C = 0.25mA	650			V
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	I_C=25 A, V_{GE}=15 V, T_{vj}=25 ℃		1.59		V
		I_C=25 A, V_{GE}=15 V, T_{vj}=150 ℃		1.93		V
$V_{GE(th)}$	Gate Threshold Voltage	I_C= 0.25 mA,V_{CE}=V_{GE}	5.0	5.5	6.0	V
I_{CES}	Collector-Emitter Cut-off Current	V_{CE}=650V, V_{GE}=0 V, T_{vj}=25 ℃			1	mA
I_{GES}	Gate-Emitter Leakage Current	V_{CE}=0 V, V_{GE}=20 V, T_{vj}=25 ℃			100	nA
$t_{d(on)}$	Turn-on Delay Time	I_C=25 A,V_{CE}=300 V V_{GE}=±15 V R_G=30 Ω T_{vj}=25 ℃		38		ns
t_r	Rise Time, Inductive Load			51		ns
$t_{d(off)}$	Turn-off Delay Time, Inductive Load			132		ns
t_f	Fall Time, Inductive Load			92		ns
E_{on}	Turn-on Energy Loss per Pulse			0.78		mJ
E_{off}	Turn-off Energy Loss			0.25		mJ
$t_{d(on)}$	Turn-on Delay Time	I_C=25 A,V_{CE}=300 V V_{GE}=±15 V R_G=30 Ω T_{vj}=150 ℃		50		ns
t_r	Rise Time, Inductive Load			33		ns
$t_{d(off)}$	Turn-off Delay Time, Inductive Load			140		ns
t_f	Fall Time, Inductive Load			164		ns
E_{on}	Turn-on Energy Loss per Pulse			1.10		mJ
E_{off}	Turn-off Energy Loss			0.39		mJ
I_{SC}	Short circuit collector current	V_{GE}=15V,t_{SC}≤5μs V_{CC}=300V, T_j=25°C		100		A

Characteristics Values of the Diode

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
V_F	Forward Voltage	I_F=8 A,T_{vj}=25 ℃		1.22		V
		I_F=8 A,T_{vj}=150 ℃		1.10		V
I_{rr}	Reverse Recovery Current	I_C=8 A,V_{CE}=300 V di/dt=330A/μs, T_{vj}=25 ℃		12		A
Q_r	Recovered Charge			441		nC
E_{rec}	Reverse Recovery Energy			0.074		mJ
I_{rr}	Reverse Recovery Current	I_C=8 A,V_{CE}=300 V di/dt=330A/μs, T_{vj}=150 ℃		15		A
Q_r	Recovered Charge			842		nC
E_{rec}	Reverse Recovery Energy			0.135		mJ

Package Dimensions

TO-247-3L



Symbol	单位 mm		
	Min	**Nom**	Max
A	4.8	5.00	5.20
A1	3.3	3.5	3.7
A2	2.20	2.40	2.60
b	1.00	1.2	1.40
b1	2.90	3.10	3.30
b2	1.90	2.10	2.30
c	0.50	0.60	0.70
e	5.25	5.45	5.65
E	15.2	15.7	16.2
E1	10.2	10.7	11.2
H	20.8	21	21.2
H1	19.5	20.0	20.5
H2	4.00	4.20	4.40
G	5.60	5.80	600
ΦP	3.30	3.50	3.70

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