

LEGW15T120HA1

IGBT Chip

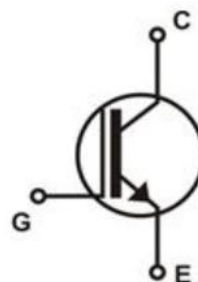
Features:

- Trench & Field Stop technology
- Low Vcesat
- Positive Vcesat temperature coefficient
- Low turn-off losses
- Short tail current
- Easy paralleling

V_{CE}	1200V
I_c	15A
Die Size	4.1883mm × 4.4295mm

Applications:

- The inverter



G: gate C: collector E: emitter

Internal Circuit

Mechanical Parameters

Parameter	Value
Die Size	4.1883mm × 4.4295mm
Scirbe line	80μm
Gate Pad Size	0.962mm × 0.684mm
Wafer Size	200mm
Wafer Thickness	120μm
Max. possible chips per wafer	1369
Front side Metal	Al / Cu, 4μm
Backside Metal	Al / Ti/ Ni / Ag

Maximum Ratings

Symbol	Description	Value	Unit
V_{CE}	Collector-Emitter Voltage, $T_j = 25^\circ\text{C}$	1200	V
I_C	DC Collector Current, Limited By $T_{jmax.}$	15 ¹⁾	A
$I_{C, puls}$	Pulsed Collector Current, tp Limited By $T_{jmax.}$	30	A
V_{GE}	Gate Emitter Voltage	± 20	V
T_{vj}	Junction Temperature Range	$-40....+175$	$^\circ\text{C}$
T_{jr}, T_{stg}	Operating Junction And Storage Temperature	$-40....+150$	$^\circ\text{C}$
tsc	Short Circuit Data $V_{GE} = 15V, V_{CC} = 600V, T_j = 150^\circ\text{C}$	10 ¹⁾	us
RBSOA	Reverse Bias Safe Operating Area ²⁾	$I_{C, max} = 30A, V_{CE, max} = 1200V,$ $T_{vj} \leq 150^\circ\text{C}$	

1) depending on Leading Energy L1 package

2) Not subject to production test - verified by design/characterization

Static Characteristics ($T_j = 25^\circ\text{C}$, unless otherwise specified) ¹⁾

Symbol	Description	Test conditions	Value			Unit
			Min.	Typ.	Max.	
$V_{(BR)CES}$	Collector-Emitter breakdown voltage	$V_{GE}=0V, I_C = 1mA$	1200	-	-	V
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	$V_{GE} = 15V, I_C = 15A$	1.7	1.85	2.3	V
$V_{GE(th)}$	Gate Threshold Voltage	$V_{CE} = V_{GE}, I_C = 0.5mA$	5.2	6.0	6.5	V
I_{CES}	Collector-Emitter Cut-off Current	$V_{CE} = 1200V, V_{GE} = 0V$	-	-	20	μA
I_{GES}	Gate - Emitter Leakage Current	$V_{CE} = 0V, V_{GE} = 20V$	-	-	200	nA
r_G	Integrated gate resister		-	TBD	-	Ω
C_{ies}	Input Capacitance	$V_{CE} = 25V, V_{GE} = 0V,$ $f = 1MHz$	-	1.29	-	nF
C_{oes}	Output Capacitance		-	65	-	pF
C_{res}	Reverse Transfer Capacitance		-	41	-	pF

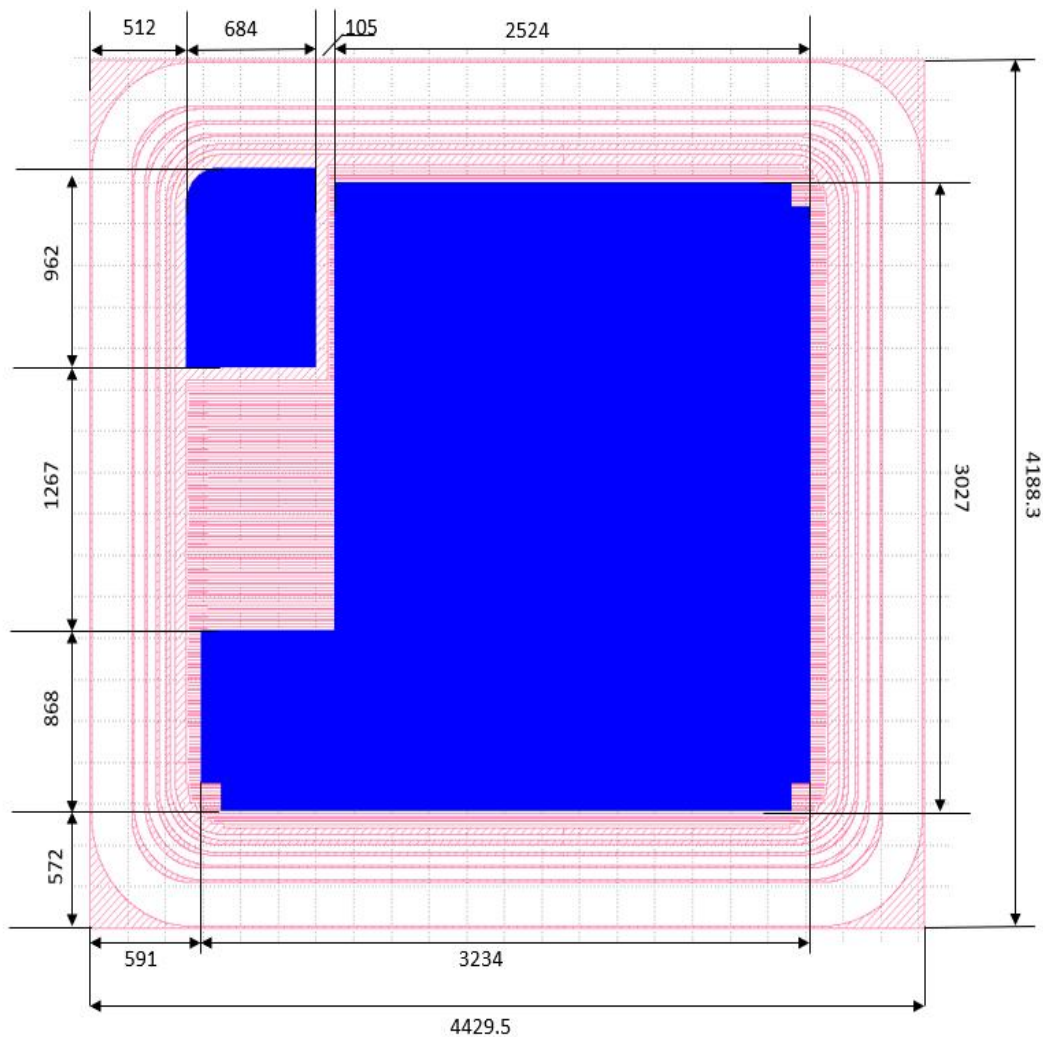
1) depending on Leading Energy L1 package

Dynamic Characteristics ($T_J = 25\text{ }^{\circ}\text{C}$, unless otherwise specified) ¹⁾

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
$t_{d(on)}$	Turn-on Delay Time, Inductive Load	$I_C = 15\text{ A}, V_{CE} = 600\text{ V}$ $V_{GE} = \pm 15\text{ V}$ $R_{Gon} = 35\Omega$ $T_{vj} = 25\text{ }^{\circ}\text{C}$		94		ns
t_r	Rise Time, Inductive Load			52		ns
$t_{d(off)}$	Turn-off Delay Time, Inductive Load			243		ns
t_f	Fall Time, Inductive Load			190		ns
E_{on}	Turn-on Energy Loss per Pulse			1.95		mJ
E_{off}	Energy Loss per Pulse			0.81		mJ
$t_{d(on)}$	Turn-on Delay Time, Inductive Load	$I_C = 15\text{ A}, V_{CE} = 600\text{ V}$ $V_{GE} = \pm 15\text{ V}$ $R_{Gon} = 35\Omega$ $T_{vj} = 150\text{ }^{\circ}\text{C}$		85		ns
t_r	Rise Time, Inductive Load			114		ns
$t_{d(off)}$	Turn-off Delay Time, Inductive Load			202		ns
t_f	Fall Time, Inductive Load			312		ns
E_{on}	Turn-on Energy Loss per Pulse			2.1		mJ
E_{off}	Energy Loss per Pulse			1.2		mJ

1) depending on Leading Energy L1 package

Chip Drawing (Dimensions: μm)



DISCLAIMER

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