

XMGW100T120HA1

IGBT Chip

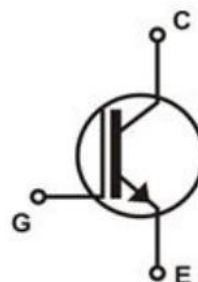
Features:

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

V_{CE}	1200V
I_C	100A
Die Size	10.3685mm × 9.5211mm

Applications:

- Power drives



G: gate C: collector E: emitter

Internal Circuit

Mechanical Parameters

Parameter	Value
Die Size	10.3685mm × 9.5211mm
Scirbe line	80μm
Gate Pad Size	1.11mm × 0.73mm
Wafer Size	200mm
Wafer Thickness	130μm
Max. possible chips per wafer	243
Front side Metal	Al /Cu, 5μm
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} .	100 ¹⁾	A
V_{GE}	Gate Emitter Voltage	± 20	V
T_{vj}	Junction Temperature Range	$-55\dots+150$	$^\circ\text{C}$
T_j, T_{stg}	Operating Junction And Storage Temperature	$-55\dots+125$	$^\circ\text{C}$
tsc	Short Circuit Data $V_{GE} = 15\text{V}, V_{CC} = 600\text{V}, T_j = 125^\circ\text{C}$	10 ¹⁾	us
RBSOA	Reverse Bias Safe Operating Area ²⁾	$I_{C, max} = 200\text{A}, V_{CE, max} = 1200\text{V}, T_{vj} \leq 150^\circ\text{C}$	

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	$V_{GE}=0\text{V}, I_C=1\text{mA}$	1200	-	-	V
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	$V_{GE} = 15\text{V}, I_C = 100\text{A}$		1.7	2.15	V
$V_{GE(th)}$	Gate Threshold Voltage	$V_{CE} = V_{GE}, I_C = 4\text{mA}$	5.2	6.2	6.5	V
I_{CES}	Collector-Emitter Cut-off Current	$V_{CE} = 1200\text{V}, V_{GE} = 0\text{V}$	-	-	20	μA
I_{GES}	Gate - Emitter Leakage Current	$V_{CE} = 0\text{V}, V_{GE} = 20\text{V}$	-	-	200	nA
r_G	Integrated gate resister		-	4.2	-	Ω
C_{ies}	Input Capacitance	$V_{CE} = 25\text{V}, V_{GE} = 0\text{V}, f = 1\text{MHz}$	-	9.65	-	nF
C_{oes}	Output Capacitance		-	492	-	pF
C_{res}	Reverse Transfer Capacitance		-	328	-	pF

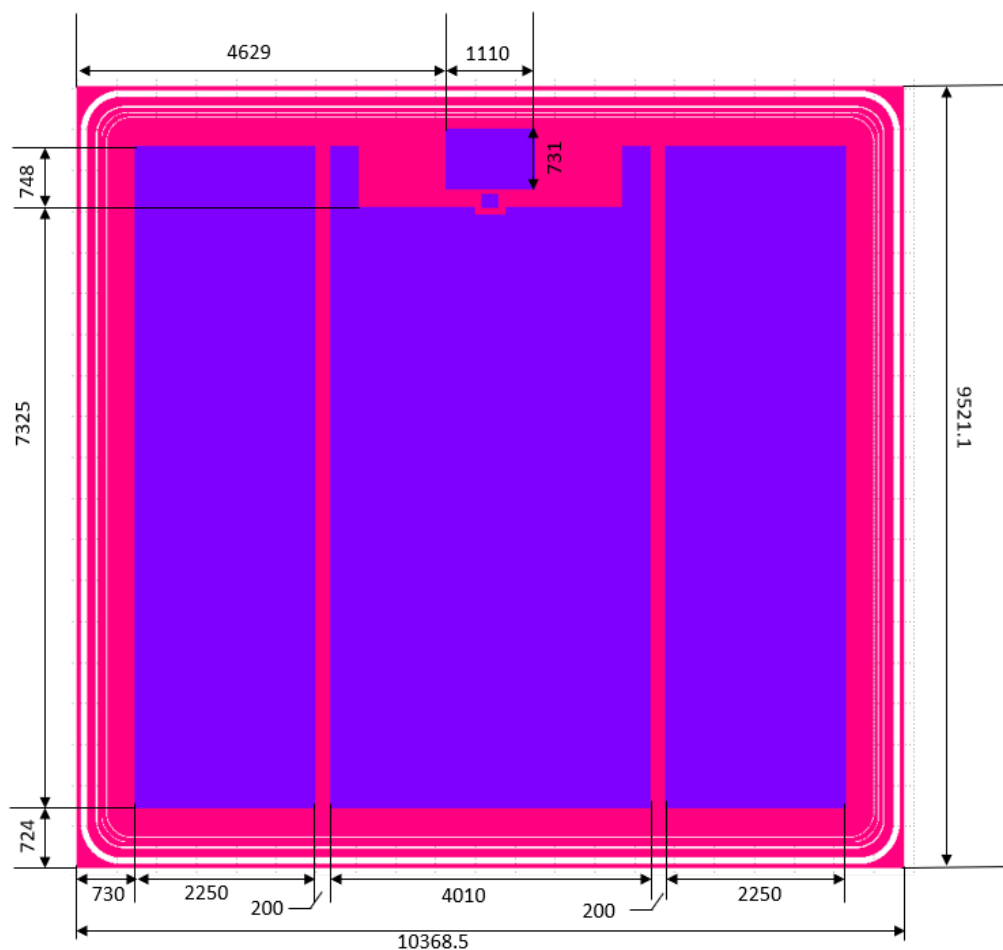
1) depending on Leading Energy L1 package

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

Symbol	Description	Test conditions	Value			Unit
			Min.	Typ.	Max.	
$t_{d(on)}$	Turn-on Delay Time	$I_C=100\text{ A}, V_{CE}=600\text{ V}$ $V_{GE}=\pm 15\text{ V}$ $R_G=1\Omega$ $T_{vj}=25\text{ }^{\circ}\text{C}$		106	-	ns
t_r	Rise Time			40	-	ns
$t_{d(off)}$	Turn-off Delay Time			360	-	ns
t_f	Fall TimeLeakage Current			190	-	ns
Eon	Turn-on Switching Loss			3.9	-	mJ
Eoff	Turn-off Switching Loss			7.8	-	mJ
$t_{d(on)}$	Turn-on Delay Time	$I_C=100\text{ A}, V_{CE}=600\text{ V}$ $V_{GE}=\pm 15\text{ V}$ $R_G=1\Omega$ $T_{vj}=150\text{ }^{\circ}\text{C}$		110	-	ns
t_r	Rise Time			43	-	ns
$t_{d(off)}$	Turn-off Delay Time			421	-	ns
t_f	Fall TimeLeakage Current			327	-	ns
Eon	Turn-on Switching Loss			4.5	-	mJ
Eoff	Turn-off Switching Loss			11.3	-	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