# XMGW75T120HA2E

## IGBT Chip

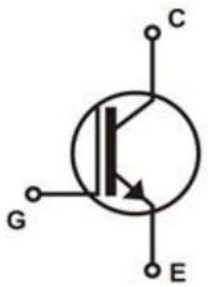
### Features:

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

| | |
|---|---|
| $V_{CE}$ | 1200V |
| $I_C$ | 75A |
| **Die Size** | 6197.90 um × 8500 um |

### Applications:

- The inverter




G：gate C：collector E：emitter

**Internal Circuit**

### Mechanical Parameters

| Parameter | Value |
|---|---|
| Die Size | 6197.90 um × 8500 um |
| Scirbe line | 80μm |
| Gate Pad Size | 1104 um, 678 um |
| Wafer Size | 200mm |
| Wafer Thickness | 130μm |
| Max. possible chips per wafer | 465 |
| 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℃ | 1200 | V |
| $I_C$ | DC Collector Current, Limited By $T_{jmax.}$ | 75 1) | A |
| $I_{c,\ puls}$ | Pulsed Collector Current, tp Limited By $T_{jmax.}$ | 150 | A |
| $V_{GE}$ | Gate Emitter Voltage | ±20 | V |
| $T_{vj}$ | Junction Temperature Range | -40....+175 | ℃ |
| $T_j$, $T_{stg}$ | Operating Junction And Storage Temperature | -40....+150 | ℃ |
| tsc | Short Circuit Data $V_{GE}$ = 15V,$V_{CC}$ = 600V,$T_j$ =150℃ | 10 1) | us |
| RBSOA | Reverse Bias Safe Operating Area 2) | $I_{C,\ max}$ = 150A, $V_{CE,\ max}$ = 1200V, $T_{vj}$ ≤ 150℃ | |

1) depending on Leading Energy L1 package

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

## Static Characteristics ($T_j$= 25 ℃, unless otherwise specified) 1)

| Symbol | Description | Test conditions | Value | | | Unit |
|---|---|---|---|---|---|---|
| | | | Min. | Typ. | Max. | |
| $V_{(BR)CES}$ | Collector-Emitter breakdown voltage | $V_{GE}$=0V , IC= 1mA | 1200 | - | - | V |
| $V_{CE(sat)}$ | Collector-Emitter Saturation Voltage | $V_{GE}$ = 15V, $I_C$ = 75A | | 1.65 | 1.9 | V |
| $V_{GE(th)}$ | Gate Threshold Voltage | $V_{CE}$ = $V_{GE}$, $I_C$ = 250uA | 5.0 | 5.6 | 6.2 | 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 | | - | 4.3 | - | Ω |
| $C_{ies}$ | Input Capacitance | $V_{CE}$ = 25V, $V_{GE}$ = 0V, f = 1MHZ | - | 10.3 | - | nF |
| $C_{oes}$ | Output Capacitance | | - | 316 | - | pF |
| $C_{res}$ | Reverse Transfer Capacitance | | - | 45.8 | - | pF |

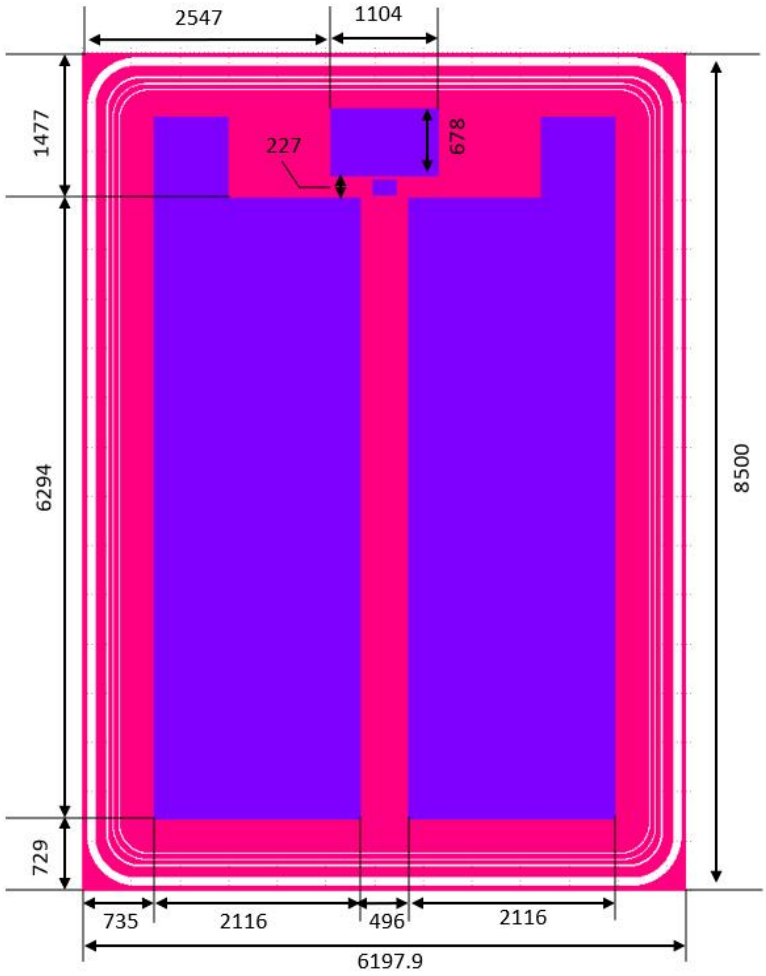
1) depending on Leading Energy L1 package

## Dynamic Characteristics ($T_j$= 25 ℃, unless otherwise specified) 1)

| Symbol | Description | Test conditions | Value | | | Unit |
|---|---|---|---|---|---|---|
| | | | Min. | Typ. | Max. | |
| $t_{d(on)}$ | Turn-on Delay Time | $I_C$=75 A,$V_{CE}$=600 V<br>$V_{GE}$=±15 V<br>$R_{Gon}$=5 Ω<br>$T_j$=25 ℃ | - | 125 | - | ns |
| $t_r$ | Rise Time | | - | 35 | - | ns |
| $t_{d(off)}$ | Turn-off Delay Time | | - | 253 | - | ns |
| $t_f$ | Fall TimeLeakage Current | | - | 207 | - | ns |
| Eon | Turn-on Switching Loss | | - | 1.8 | - | mJ |
| Eoff | Turn-off Switching Loss | | - | 6.2 | - | mJ |
| $t_{d(on)}$ | Turn-on Delay Time | $I_C$=75 A,$V_{CE}$=600 V<br>$V_{GE}$=±15 V<br>$R_{Gon}$=5 Ω<br>$T_j$=150 ℃ | - | 1313 | - | ns |
| $t_r$ | Rise Time | | - | 42.6 | - | ns |
| $t_{d(off)}$ | Turn-off Delay Time | | - | 301 | - | ns |
| $t_f$ | Fall TimeLeakage Current | | - | 368 | - | ns |
| Eon | Turn-on Switching Loss | | - | 4.0 | - | mJ |
| Eoff | Turn-off Switching Loss | | - | 9.3 | - | 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 RELIABITILY, FUNCTION OR DESIGN OR OTHERWISE