

Features:

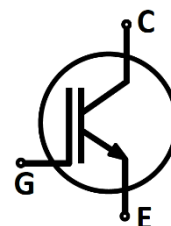
- 650V Trench & field stop technology
- Low switching losses
- High short circuit capability
- Positive Temperature coefficient
- Easy paralleling

Recommended for:

power modules

Applications:

drives



Mechanical parameters

Die size	$L \times W$	7.70×6.50	mm ²
Emitter pad size	$L \times W$	See chip drawing	mm ²
Gate pad size	$L \times W$	1.31×0.80	mm ²
Silicon thickness		80	μm
Wafer size		200	mm
Maximum possible chips per wafer		530	
Passivation frontside		Polyimide	
Pad Metallization	AlCu	4	μm
Backside Metallization	Al / Ti / Ni / Ag	1.7	μm

Maximum Ratings

Parameters	Symbol	Value	Unit
Collector-emitter voltage	V_{CE}	650	V
DC collector current, limited by $T_{vj\ max}$	I_C	100 ¹	A
Pulsed collector current, t_p limited by $T_{vj\ max}$ ²	$I_{C\ puls}$	300	A
Gate-emitter voltage	V_{GE}	±20	V
Operating junction temperature	$T_{vj\ op}$	-40~175	°C
Storage temperature	T_{stg}	-40~150	°C
Short circuit data ³ ($V_{GE}=15V$, $V_{CC}=360V$, $T_{vj}=150^\circ C$)	t_{sc}	10	μs

Static Characteristic ($T_{vj}=25^\circ C$, unless otherwise noted)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Collector-emitter breakdown voltage	$V_{(BR)CES}$	$V_{GE}=0V$, $I_C=25\mu A$	650	-	-	V
Collector-emitter saturation voltage	$V_{CE(sat)}$	$V_{GE}=15V$, $I_C=25A$	0.85	1.00	1.15	V
Gate-emitter threshold voltage	$V_{GE(th)}$	$I_C=1.6mA$, $V_{CE}=V_{GE}$	4.3	4.8	5.3	V
Collector-emitter leakage	I_{CES}	$V_{CE}=650V$, $V_{GE}=0V$	-	-	0.54	μA
Gate-emitter leakage	I_{GES}	$V_{CE}=0V$, $V_{GE}=20V$	-	-	120	nA
Integrated gate resistor	R_{Gint}			2.0		Ω

¹ Depending on thermal properties of assembly.

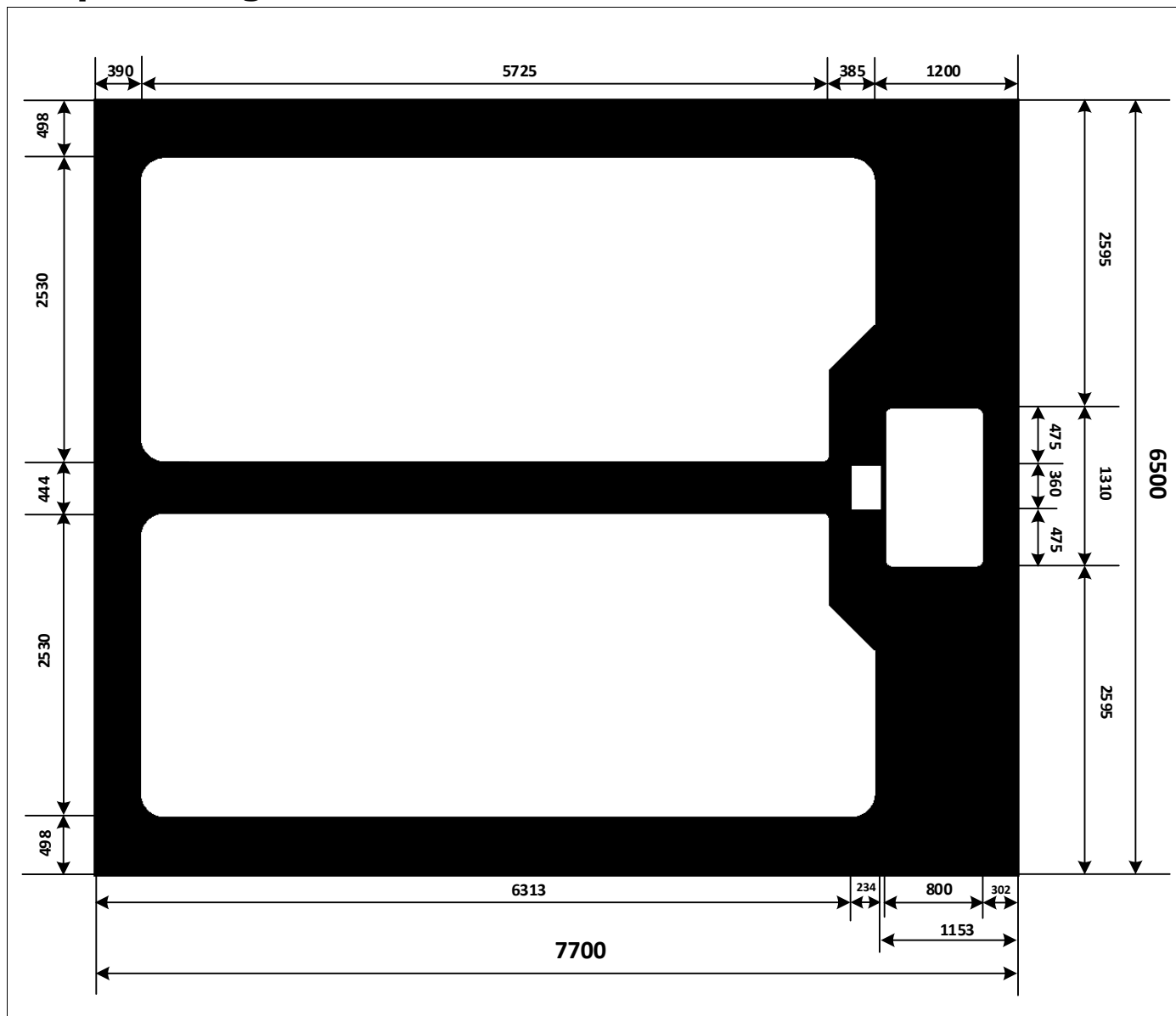
² Not subject to production test - verified by design/characterization.

³ Allowed number of short circuit: <1000; time between short circuit: >1s.

Electrical Characteristic ¹

Parameter		Symbol	Conditions	Min.	Typ.	Max.	Unit
Collector-emitter saturation voltage	$T_{vj}=25^{\circ}\text{C}$	$V_{CE(sat)}$	$V_{GE}=15\text{V},$ $I_C=100\text{A}$	1.30	1.50	1.70	V
	$T_{vj}=150^{\circ}\text{C}$			1.40	1.70	2.00	
Input capacitance		C_{ies}	$V_{CE}=25\text{V},$ $V_{GE}=0\text{V}, f=100\text{kHz},$ $T_{vj}=25^{\circ}\text{C}$	-	7400	-	pF
Reverse transfer capacitance		C_{res}		-	140	-	pF

Chip Drawing (unit: μm)



¹ Not subject to production test - verified by design/characterization.

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