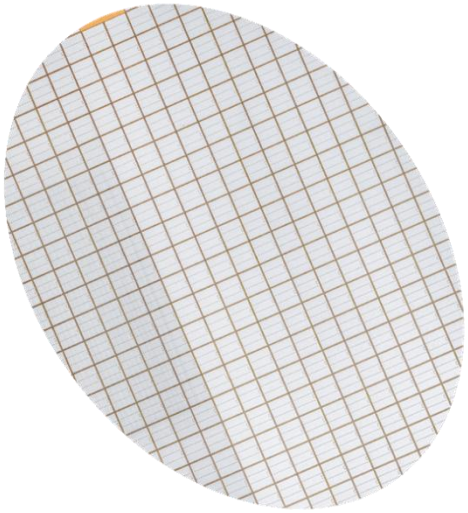
TARGET DATASHEET

SIS0250C230i26

i26 micro pattern IGBT, 16.4 mm x 12.4 mm



V_{CE} = 2300 V
I_C = 250 A

- *i26* ultra-low-loss micro pattern Trench IGBT
- Soft switching for a broad application range due to best turn-off controllability
- positive temperature coefficient
- easy paralleling

Maximum ratings[1]

PARAMETER	SYMBOL	CONDITIONS	MIN	MAX	UNIT
Collector-emitter voltage -	V_{CES}	V_{GE} = 0 V, T_{vj} ≥ 25 °C		2300	V
DC collector current	I_C			250	A
Peak collector current	I_{CM}	t_p limited by $T_{vj\,max}$ $T_{vj\,max}$		500	A
Gate-emitter voltage -	V_{GES}		-20	20	V
Junction temperature	T_{vj}		-40	175	°C
Junction operating temperature	$T_{vj(op)}$		-40	175	°C
Short circuit[2]	t_{sc}	V_{GE} = 15V, V_{CC} = 1800V, T_{vj} = 175°C[3]		5	µs

[1] Maximum rated values indicate limits beyond which damage to the device may occur per IEC 60747
[2] Not subject to production test, capability depending on module design
[3] Short circuit performance at high temperature requires suitable die assembly process

IGBT[4]

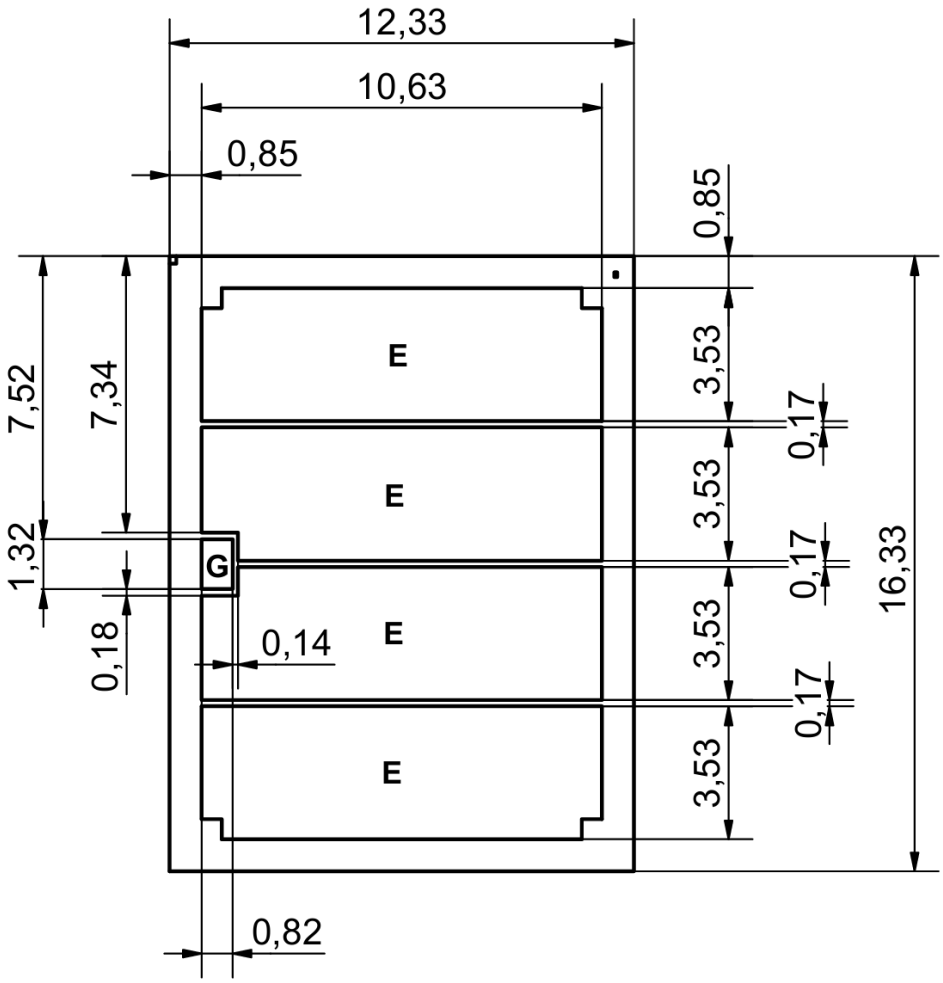
PARAMETER	SYMBOL	CONDITIONS		MIN	TYP	MAX	UNIT
Collector(-emitter) breakdown voltage –	$V_{(BR)CES}$	V_{GE} = 0 V, I_C = 0.25 mA, T_{vj} = 25 °C		2300			V
Collector-emitter saturation voltage [5] –	V_{CEsat}	I_c = 250 A, V_{GE} = 15 V	T_{vj} = 25 °C		1.9		V
			T_{vj} = 125 °C		2.3		V
			T_{vj} = 175 °C		2.5		V
Collector cut-off current	I_{CES}	V_{CE} = 1200 V, V_{GE} = 0 V	T_{vj} = 25 °C			1	µA
Gate leakage current	I_{GES}	V_{CE} = 0 V, V_{GE} = ±20 V		-0.1		0.1	µA
Gate-emitter threshold voltage –	$V_{GE(th)}$	I_C = 10 mA, V_{CE} = V_{GE}, T_{vj} = 25°C			6.8		V
Gate charge	Q_G	I_C = 250 A, V_{CE} = 1500 V, V_{GE} = -15 V .. 15 V					µC
Input capacitance	C_{ies}	V_{CE} = 25 V, V_{GE} = 0 V, f = 1 MHz, T_{vj} = 25 °C					nF
Output capacitance	C_{oes}						pF
Reverse tansfer capacitance	C_{res}						pF
Internal gate resistor	R_{Gint}	Per switch					Ω
Turn-on delay time	$t_{d(on)}$	V_{CC} = 1500 V, I_C = 250 A, R_G = 1.5 Ω, V_{GE} = ± 15 V	T_{vj} = 25 °C				ns
			T_{vj} = 125 °C				ns
			T_{vj} = 175 °C		675		ns
Rise time	t_r		T_{vj} = 25 °C		60		ns
			T_{vj} = 125 °C				ns
			T_{vj} = 175 °C		80		ns
Turn-off delay time	$t_{d(off)}$	V_{CC} = 1500 V, I_C = 250 A, R_G = 66 Ω, V_{GE} = ± 15 V	T_{vj} = 25 °C		1750		ns
			T_{vj} = 125 °C				ns
			T_{vj} = 175 °C		1950		ns
Fall time	t_f		T_{vj} = 25 °C		250		ns
			T_{vj} = 125 °C				ns
			T_{vj} = 175 °C		440		ns
Turn-on switching energy	E_{on}	V_{CC} = 1500 V, I_C = 250 A, R_G = 1.5 Ω, V_{GE} = ± 15 V Diode: SID0250C230d26	T_{vj} = 25 °C		80		mJ
			T_{vj} = 125 °C				mJ
			T_{vj} = 175 °C		130		mJ
Turn-off switching energy	E_{off}	V_{CC} = 1500 V, I_C = 250 A, R_G = 66 Ω, V_{GE} = ± 15 V	T_{vj} = 25 °C		160		mJ
			T_{vj} = 125 °C				mJ
			T_{vj} = 175 °C		220		mJ
Short circuit current	I_{SC}	t_{pcs} ≤ 5 µs, V_{GE} = 15 V, T_{vj} = 175 °C, V_{CC} = 1800 V, $v_{CEM\ Chip}$ ≤ 1200 V			1250		A

[4] Characteristic values according to IEC 60747-9

Mechanical properties

PARAMETER		UNIT
Die size	(16.33 ± 0.01) x (12.33 ± 0.01)	mm^2
Gate pad size	1.32 x 0.81	mm^2
Thickness	230± 5	µm
Wafer diameter	200	mm
Maximum chips per wafer	114	pcs
Frontside passivation	Polyimide	
Frontside metal (pads)	Al Cu, 5000nm	
Backside metal	Al Ni Ag System, 1100nm	

Chip drawing



This is an electrostatic sensitive device.