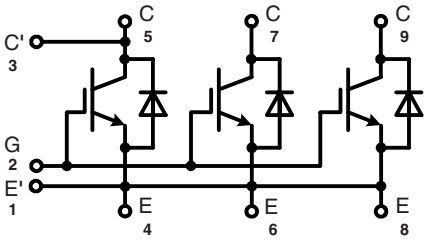
IGBT Module
Single switch

I_{C80} = 1200 A
V_{CES} = 3300 V
$V_{CE(sat)\ typ.}$ = 3.1 V

Short Circuit SOA Capability
Square RBSOA



IGBT

Symbol	Conditions	Maximum Ratings	
V_{CES}	V_{GE} = 0 V	3300	V
V_{GES}		± 20	V
I_{C80}	T_C = 80°C	1200	A
I_{CM}	t_p = 1 ms; T_C = 80°C	2400	A
t_{SC}	V_{CC} = 2500 V; $V_{CEM\ CHIP}$ = ≤ 3300 V; V_{GE} ≤ 15 V; T_{VJ} ≤ 125°C	10	µs

Symbol	Conditions	Characteristic Values (T_{VJ} = 25°C, unless otherwise specified) min.	typ.	max.	
$V_{CE(sat)}$ ①	I_C = 1200 A; V_{GE} = 15 V; T_{VJ} = 25°C		3.1		V
	T_{VJ} = 125°C		3.8		V
$V_{GE(th)}$	I_C = 240 mA; V_{CE} = V_{GE}	6		8	V
I_{CES}	V_{CE} = 3300 V; V_{GE} = 0 V; T_{VJ} = 125°C			120	mA
I_{GES}	V_{CE} = 0 V; V_{GE} = ± 20 V; T_{VJ} = 125°C			500	nA
E_{on}	Inductive load; T_{VJ} = 125°C; V_{GE} = ±15 V;		1750		mJ
E_{off}	V_{CC} = 1800V; I_C = 1200A; R_G = 1Ω; L_σ = 100nH		2000		mJ
R_{thJC}				0.0085	K/W

① Collector emitter saturation voltage is given at chip level

Features

- NPT³ IGBT
  - Low-loss
  - Smooth switching waveforms for good EMC
- Industry standard package
  - High power density
  - AlSiC base-plate for high power cycling capacity
  - AlN substrate for low thermal resistance

Typical Applications

- AC power converters for
  - industrial drives
  - windmills
  - traction
- LASER pulse generator

IXYS reserves the right to change limits, test conditions and dimensions.

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Diode

Symbol	Conditions	Maximum Ratings	
I_{F80}	T_C = 80°C	1200	A
I_{FSM}	V_R = 0 V; T_{VJ} = 125°C; t_p = 10 ms; half-sinewave	12000	A

Symbol	Conditions	Characteristic Values min.	typ.	max.	
V_F ②	I_F = 1200 A; T_{VJ} = 25°C		2.30		V
	T_{VJ} = 125°C		2.35		V
I_{RM}	V_{CC} = 1800 V; I_C = 1200 A;		1680		A
t_{rr}	V_{GE} = ±15 V; R_G = 1 Ω; T_{VJ} = 125°C		800		ns
Q_{RR}	Inductive load; L_σ = 100nH		1320		µC
E_{rec}			1740		mJ
R_{thJC}				0.017	K/W

② Forward voltage is given at chip level

Module

Symbol	Conditions		Maximum Ratings	
T_{JM}	max junction temperature		+125	°C
T_{VJ}	Operatingtemperature		-40...+125	°C
T_{stg}	Storage temperature		-40...+125	°C
M_d	Mounting torque	Base-heatsink, M6 screws	4 - 6	Nm
		Main terminals, M8 screws	8 - 10	Nm

Symbol	Conditions		Characteristic Values min.	typ.	max.	
d_A	Clearance distance	terminal to base	26			mm
		terminal to terminal	26			mm
d_S	Surface creepage	terminal to base	56			mm
	distance	terminal to terminal	56			mm
V_{ISOL}	1 min, f = 50 Hz		10500			V~
V_E	Partial discharge extinction voltage f = 50 Hz, $Q_{PD} \leq$ 10pC		5100			V
CTI	Comperative tracking index		600			
L_σ	Module stray inductance, C to E terminal			18		nH
$R_{term-chip}$ *	Resistance terminal to chip			0.12		mΩ
R_{thCH}	per module; λ grease = 1 W/m•K			0.006		K/W
Weight				1500		g

*) $V = V_{CE(sat)} + R_{term-chip} \cdot I_C$ resp. $V = V_F + R_{term-chip} \cdot I_F$

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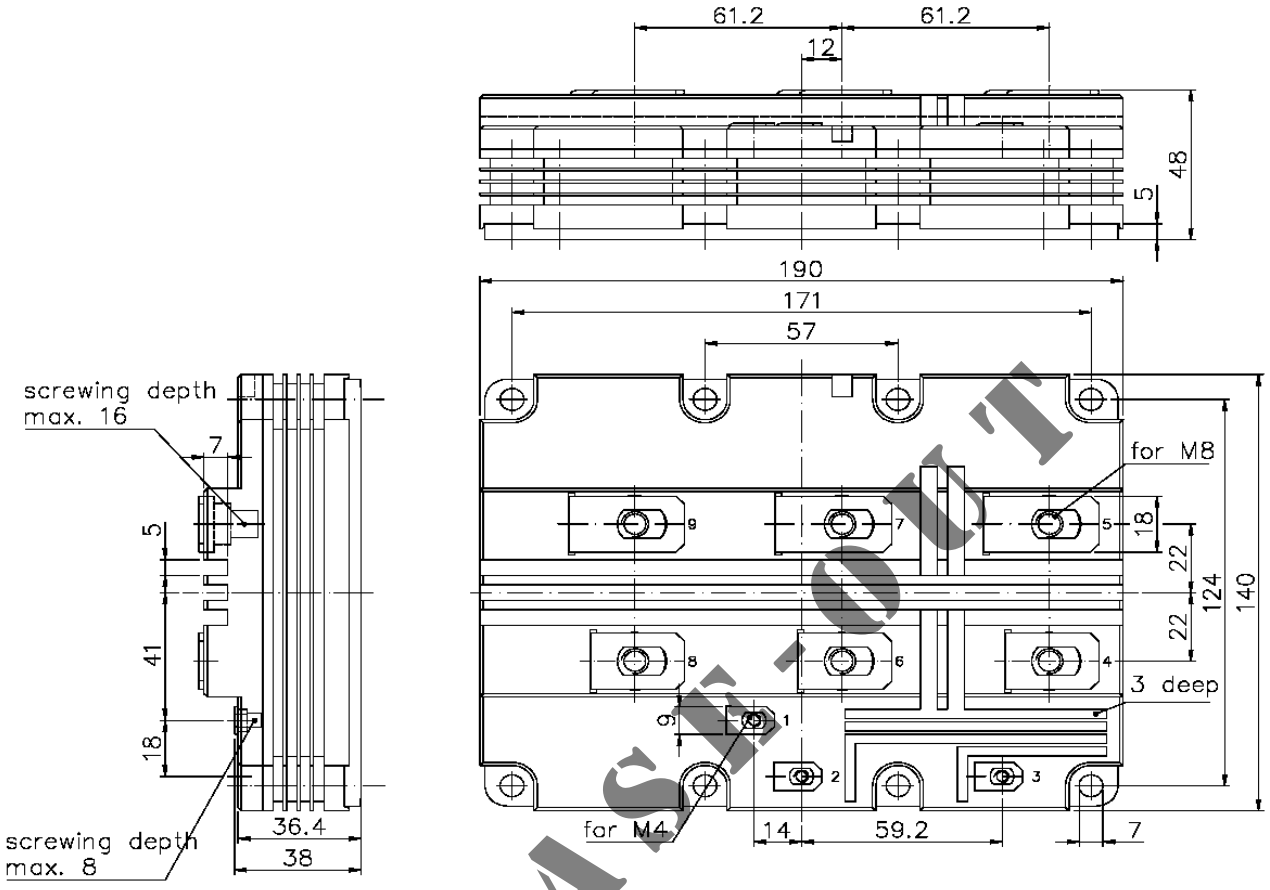
Outline drawing



Note: all dimensions are shown in mm