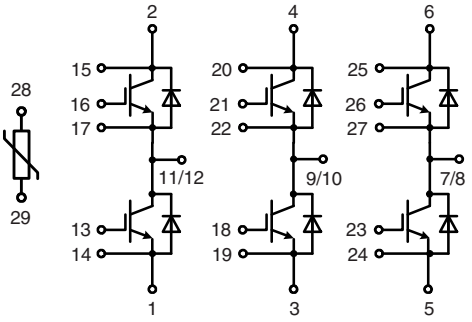
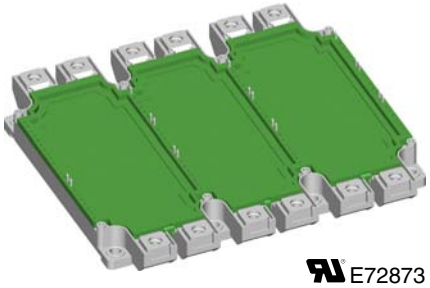
IGBT Modules
Sixpack

I_{C60} = 475 A
V_{CES} = 1700 V
$V_{CE(sat)\ typ}$ = 2.25 V

Preliminary data





See outline drawing for pin arrangement

Features
- NPT³ IGBT technology
- low saturation voltage
- low switching losses
- square RBSOA, no latch up
- high short circuit capability
- positive temperature coefficient for easy parallelling
- MOS input, voltage controlled
- ultra fast free wheeling diodes
- solderable pins for PCB mounting
- package with copper base plate

Advantages
- space savings
- reduced protection circuits
- package designed for wave soldering

Typical Applications
- AC motor control
- AC servo and robot drives
- power supplies

IGBTs

Symbol	Conditions	Maximum Ratings	
V_{CES}	T_{VJ} = 25°C to 125°C	1700	V
V_{GES}		± 20	V
I_{C25}	T_C = 25°C	580	A
I_{C60}	T_C = 60°C	475	A
I_{C80}	T_C = 80°C	405	A
RBSOA	R_G = 3.3 Ω; T_{VJ} = 125°C Clamped inductive load; L = 100 µH	I_{CM} = 750 $V_{CEK} \le V_{CES}$	A
t_{SC} (SCSOA)	V_{CE} = 1200 V; V_{GE} = ±15 V; R_G = 3.3 Ω; T_{VJ} = 125°C; non-repetitive; $V_{CEmax} \le V_{CES}$	10	µs
P_{tot}	T_C = 25°C	2.2	kW

Symbol	Conditions	Characteristic Values (T_{VJ} = 25°C, unless otherwise specified) min.	typ.	max.	
$V_{CE(sat)}$	I_C = 450 A; V_{GE} = 15 V; T_{VJ} = 25°C		2.25	2.65	V
	T_{VJ} = 125°C		2.65	3.0	V
$V_{GE(th)}$	I_C = 30 mA; V_{GE} = V_{CE}	5		7	V
I_{CES}	V_{CE} = V_{CES}; V_{GE} = 0 V; T_{VJ} = 25°C			1	mA
	T_{VJ} = 125°C		9	26	mA
I_{GES}	V_{CE} = 0 V; V_{GE} = ± 20 V			1.5	µA
$t_{d(on)}$	Inductive load, T_{VJ} = 125°C V_{CE} = 900 V; I_C = 450 A V_{GE} = ±15 V; R_G = 3.3 Ω		100		ns
t_r			90		ns
$t_{d(off)}$			470		ns
t_f			400		ns
E_{on}			90		mJ
E_{off}			90		mJ
C_{ies}	V_{CE} = 25 V; V_{GE} = 0 V; f = 1 MHz		33		nF
Q_{Gon}	V_{CE} = 900 V; V_{GE} = 15 V; I_C = 300 A		2.6		µC
R_{thJC}				0.057	K/W

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

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Diodes

Symbol	Conditions	Maximum Ratings	
I_{F80}	T_C = 80°C	450	A
I_{FRM}	t_p = 1 ms	900	A
I^2t	T_{VJ} = 125°C; t = 10 ms; V_R = 0 V	35000	A^2s

Symbol	Conditions	Characteristic Values min.	typ.	max.	
V_F	I_F = 450 A; V_{GE} = 0 V; T_{VJ} = 25°C			2.2	V
I_{RM}	I_F = 450 A; di_F/dt = 3500 A/µs; T_{VJ} = 125°C; V_R = 1200 V		400		A
R_{thJC}			0.075		K/W

Temperature Sensor NTC

Symbol	Conditions	Characteristic Values min.	typ.	max.	
R_{25}	T = 25°C	4.75	5.0	5.25	kΩ
$B_{25/50}$			3375		K

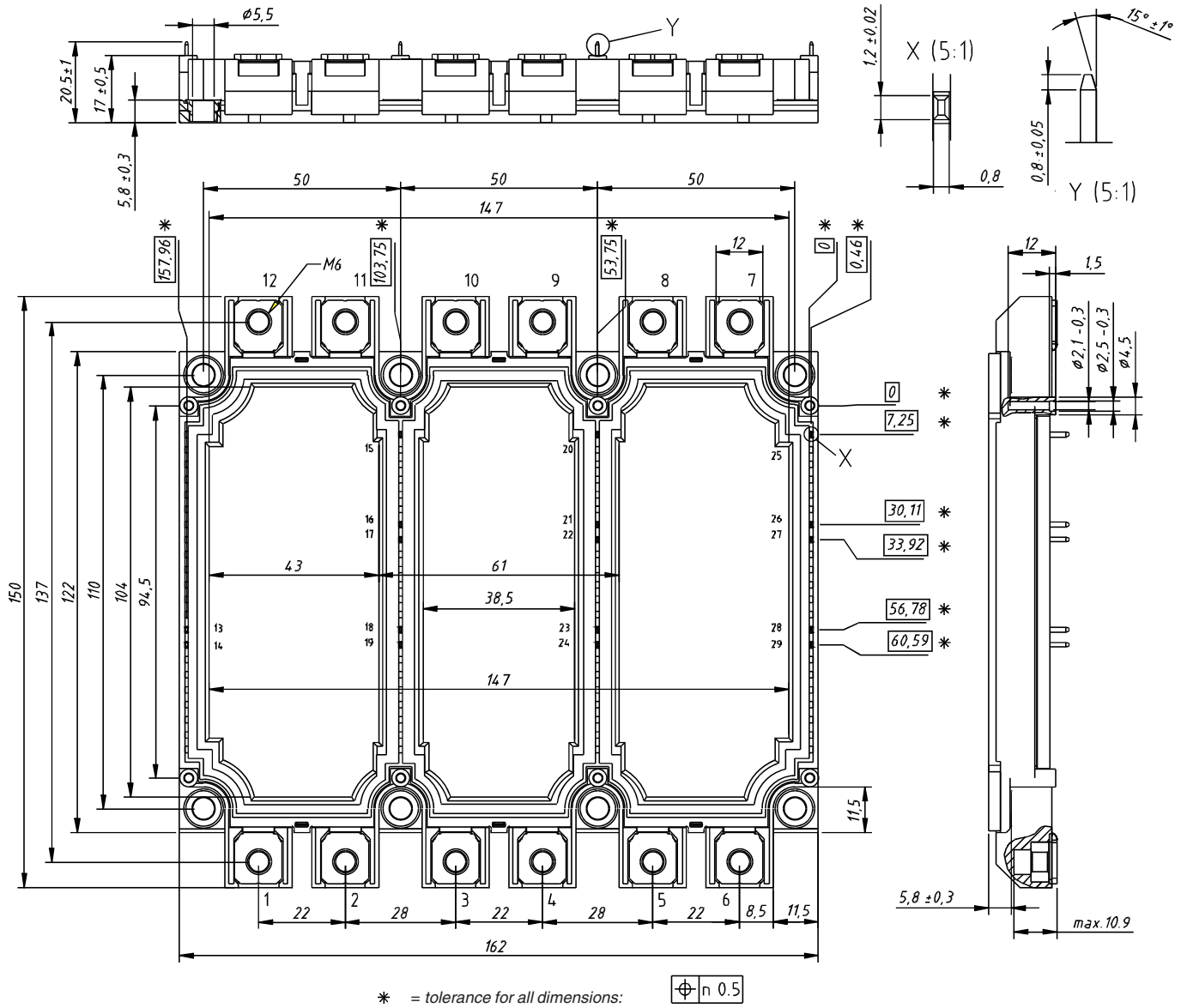
Module

Symbol	Conditions	Maximum Ratings	
T_{VJ}	operating	-40...+125	°C
T_{JM}		+150	°C
T_{stg}		-40...+125	°C
V_{ISOL}	$I_{ISOL} \leq$ 1 mA; 50/60 Hz	3400	V~
M_d	Mounting torque (M5)	3 - 6	Nm
	Terminal connection torque (M6)	3 - 6	Nm

Symbol	Conditions	Characteristic Values min.	typ.	max.	
$R_{term-chip}$ *)	Resistance terminal to chip		0.55		mΩ
d_S	Creepage distance on surface	12.7			mm
d_A	Strike distance in air	10			mm
R_{thCH}	with heatsink compound		0.01		K/W
Weight			900		g

*) $V = V_{CE(sat)} + 2x\ R_{term-chip} \cdot I_C$ resp. $V = V_F + 2x\ R_{term-chip} \cdot I_F$

Dimensions in mm (1 mm = 0.0394")



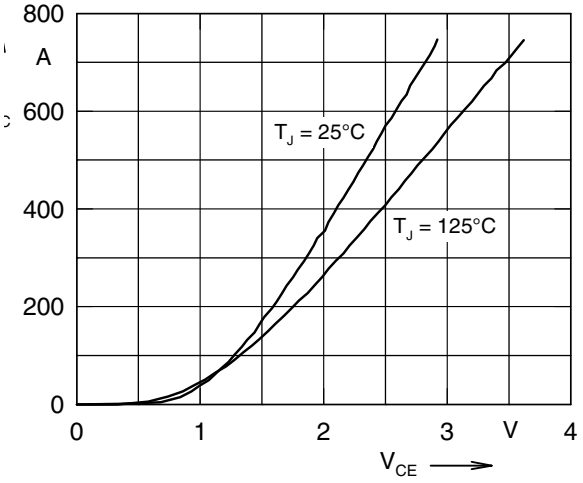


Fig. 1 Typ. output characteristics

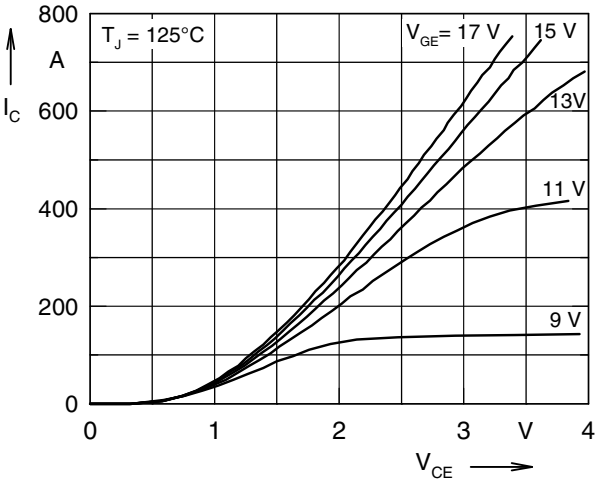


Fig. 2 Typ. output characteristics