Chipsmall

Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of "Quality Parts,Customers Priority,Honest Operation,and Considerate Service",our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!

Contact us

IGBT Module
Sixpack
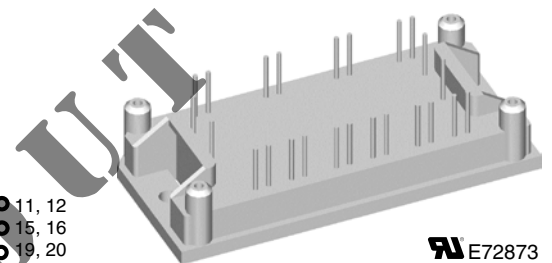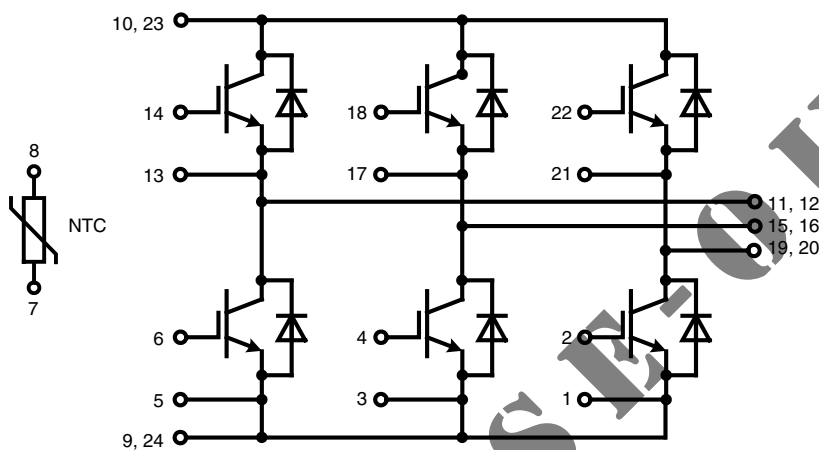### Short Circuit SOA Capability
Square RBSOA

I_{C25} = 51 A
V_{CES} = 1200 V
$V_{CE(sat) typ.}$ = 2.4 V

Preliminary data

Part name (Marking on product)

MWI 50-12E6K

E72873

Pin configuration see outlines.

Features:

- SPT IGBTs
  - low saturation voltage
  - positive temperature coefficient for easy paralleling
  - fast switching
  - short tail current for optimized performance also in resonant circuits
- HiPerFRED™ diode:
  - fast reverse recovery
  - low operating forward voltage
  - low leakage current
- Industry Standard Package
  - solderable pins for PCB mounting
  - isolated copper base plate

Application:

- AC drives
- UPS
- Welding

Package:

- UL registered
- Industry standard E1-pack

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

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MWI 50-12E6K

IGBTs

Symbol	Definitions	Conditions		min.	typ.	max.	Unit
V_{CES}	collector emitter voltage	T_{VJ} = 25°C to 150°C				1200	V
V_{GES}	max. DC gate voltage	continuous				±20	V
V_{GEM}	max. transient collector gate voltage	transient				±30	V
I_{C25}	collector current	T_C = 25°C				51	A
I_{C80}		T_C = 80°C				36	A
P_{tot}	total power dissipation	T_C = 25°C				210	W
$V_{CE(sat)}$	collector emitter saturation voltage	I_C = 35 A; V_{GE} = 15 V	T_{VJ} = 25°C		2.4	2.9	V
			T_{VJ} = 125°C		2.8		V
$V_{GE(th)}$	gate emitter threshold voltage	I_C = 1 mA; V_{GE} = V_{CE}	T_{VJ} = 25°C	4.5		6.5	V
I_{CES}	collector emitter leakage current	V_{CE} = V_{CES}; V_{GE} = 0 V	T_{VJ} = 25°C			0.3	mA
			T_{VJ} = 125°C		1.2		mA
I_{GES}	gate emitter leakage current	V_{CE} = 0 V; V_{GE} = ±20 V				200	nA
C_{ies}	input capacitance	V_{CE} = 25 V; V_{GE} = 0 V; f = 1 MHz			2000		pF
$Q_{G(on)}$	total gate charge	V_{CE} = 600 V; V_{GE} = 15 V; I_C = 35 A			150		nC
$t_{d(on)}$	turn-on delay time				90		ns
t_r	current rise time	inductive load	T_{VJ} = 125°C		50		ns
$t_{d(off)}$	turn-off delay time	V_{CE} = 600 V; I_C = 35 A			440		ns
t_f	current fall time	V_{GE} = ±15 V; R_G = 39 Ω			50		ns
E_{on}	turn-on energy per pulse				5.4		mJ
E_{off}	turn-off energy per pulse				2.6		mJ
I_{CM}	reverse bias safe operating area	RBSOA; V_{GE} = ±15 V; R_G = 39 Ω			70		A
		L = 100 µH; clamped induct. load	T_{VJ} = 125°C				
		V_{CEmax} = V_{CES} - L_S·di/dt					
t_{SC} (SCSOA)	short circuit safe operating area	V_{CE} = 900 V; V_{GE} = ±15 V; R_G = 39 Ω; non-repetitive	T_{VJ} = 125°C		10		µs
R_{thJC}	thermal resistance junction to case	(per IGBT)				0.6	K/W
R_{thCH}	thermal resistance case to heatsink	(per IGBT)			0.2		K/W

Diodes

Symbol	Definitions	Conditions		Maximum Ratings		Unit
V_{RRM}	max. repetitive reverse voltage			1600		V
I_{F25}	forward current	T_C = 25°C		49		A
I_{F80}		T_C = 80°C		32		A

Symbol	Conditions		min.	typ.	max.	
V_F	forward voltage	I_F = 35 A	T_{VJ} = 25°C		2.6	2.9	V
			T_{VJ} = 125°C		1.8		V
I_{RM}	max. reverse recovery current	V_R = 600 V; I_F = 35 A			35		A
t_{rr}	reverse recovery time	di_F/dt = -600 A/µs	T_{VJ} = 100°C		150		ns
R_{thJC}	thermal resistance junction to case	(per diode)				0.9	K/W
R_{thCH}	thermal resistance case to heatsink	(per diode)			0.3		K/W

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MWI 50-12E6K

Temperature Sensor NTC

Symbol	Definitions	Conditions	min.	typ.	max.	Unit
R_{25}	resistance	$T_C =$ 25°C	4.45	4.7	5.0	kΩ
$B_{25/85}$				3510		K

Module

Symbol	Definitions	Conditions	min.	typ.	max.	Unit
T_{VJ}	operating temperature		-40		125	°C
T_{VJM}	max. virtual junction temperature				150	°C
T_{stg}	storage temperature		-40		125	°C
V_{ISOL}	isolation voltage	$I_{ISOL} \leq$ 1 mA; 50/60 Hz			2500	V~
M_d	mounting torque	(M4)	2.0		2.2	Nm
d_S	creep distance on surface		12.7			mm
d_A	strike distance through air		12.7			mm
Weight				40		g

Equivalent Circuits for Simulation
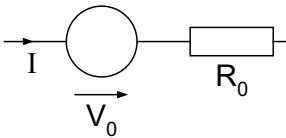
Ratings

Symbol	Definitions	Conditions	min.	typ.	max.	Unit
V_0	IGBT	$T_{VJ} =$ 125°C		1.0		V
R_0				44		mΩ
V_0	free wheeling diode	$T_{VJ} =$ 125°C		1.5		V
R_0				14		mΩ

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Outline Drawing Dimensions in mm (1 mm = 0.0394")
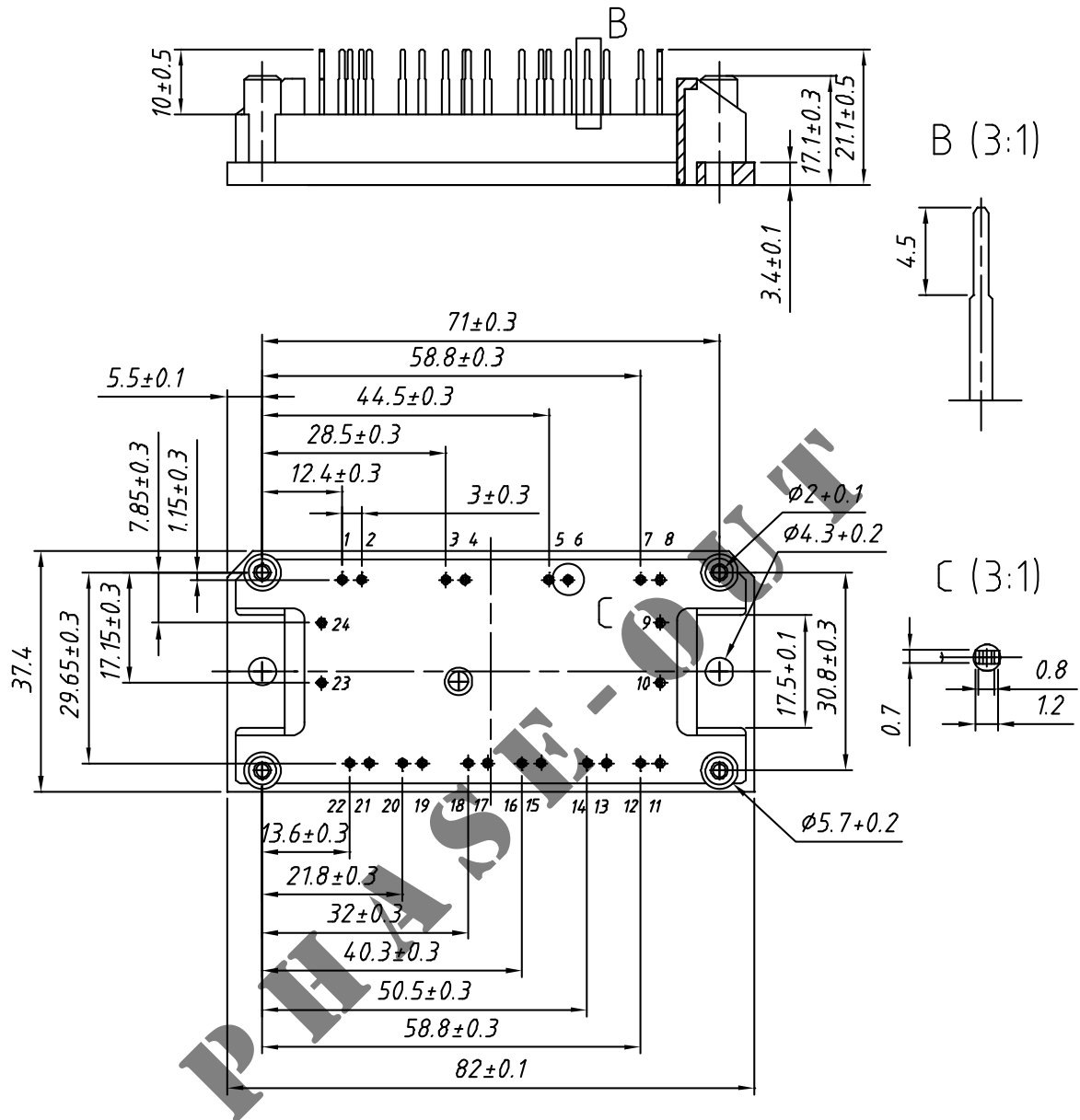
Product Marking

Ordering	Part Name	Marking on Product	Delivering Mode	Base Qty	Ordering Code
Standard	MWI 50-12E6K	MWI50-12E6K	Box	10	499 889

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