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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.

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Six-Pack XPT IGBT

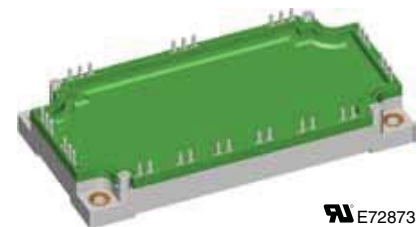
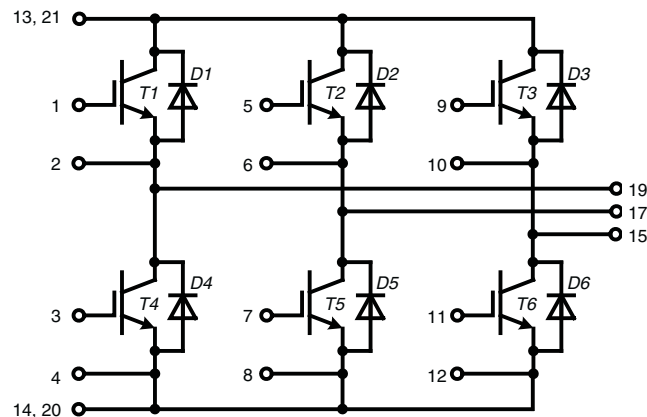
$$V_{CES} = 1200 \text{ V}$$

$$I_{C25} = 155 \text{ A}$$

$$V_{CE(sat)} = 1.8 \text{ V}$$

Part name (Marking on product)

MIXA101W1200EH



E72873

Features:

- Easy paralleling due to the positive temperature coefficient of the on-state voltage
- Rugged XPT design (Xtreme light Punch Through) results in:
 - short circuit rated for 10 μ sec.
 - very low gate charge
 - square RBSOA @ 3x I_C
 - low EMI
- Thin wafer technology combined with the XPT design results in a competitive low $V_{CE(sat)}$
- SONIC™ diode
 - fast and soft reverse recovery
 - low operating forward voltage

Application:

- AC motor drives
- Solar inverter
- Medical equipment
- Uninterruptible power supply
- Air-conditioning systems
- Welding equipment
- Switched-mode and resonant-mode power supplies

Package:

- "E3-Pack" standard outline
- Insulated copper base plate
- Soldering pins for PCB mounting
- Optimizes pin layout

Output Inverter T1 - T6

Symbol	Definitions	Conditions	Ratings			Unit
			min.	typ.	max.	
V_{CES}	collector emitter voltage				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				155	A
I_{C80}					108	A
P_{tot}	total power dissipation				500	W
$V_{CE(sat)}$	collector emitter saturation voltage	$I_C = 100\text{ A}; V_{GE} = 15\text{ V}$		1.8	2.1	V
				2.1		V
$V_{GE(th)}$	gate emitter threshold voltage	$I_C = 4\text{ mA}; V_{GE} = V_{CE}$		5.4	6.0	V
I_{CES}	collector emitter leakage current	$V_{CE} = V_{CES}; V_{GE} = 0\text{ V}$		0.03	0.3	mA
				0.6		mA
I_{GES}	gate emitter leakage current	$V_{GE} = \pm 20\text{ V}$			500	nA
$Q_{G(on)}$	total gate charge	$V_{CE} = 600\text{ V}; V_{GE} = 15\text{ V}; I_C = 100\text{ A}$			295	nC
$t_{d(on)}$	turn-on delay time	inductive load $V_{CE} = 600\text{ V}; I_C = 100\text{ A}$ $V_{GE} = \pm 15\text{ V}; R_G = 7\ \Omega$	$T_{VJ} = 125^\circ\text{C}$		70	ns
t_r	current rise time				40	ns
$t_{d(off)}$	turn-off delay time				250	ns
t_f	current fall time				100	ns
E_{on}	turn-on energy per pulse				8.5	mJ
E_{off}	turn-off energy per pulse				11	mJ
RBSOA	reverse bias safe operating area	$V_{GE} = \pm 15\text{ V}; R_G = 7\ \Omega;$			300	A
SCSOA	short circuit safe operating area					
t_{SC}	short circuit duration	$V_{CE} = 900\text{ V}; V_{GE} = \pm 15\text{ V};$			10	μs
I_{SC}	short circuit current	$R_G = 7\ \Omega;$ non-repetitive		400		A
R_{thJC}	thermal resistance junction to case	(per IGBT)			0.25	K/W

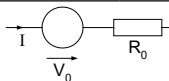
Output Inverter D1 - D6

Symbol	Definitions	Conditions	Ratings			Unit
			min.	typ.	max.	
V_{RRM}	max. repetitive reverse voltage				1200	V
I_{F25}	forward current				135	A
I_{F80}					90	A
V_F	forward voltage	$I_F = 100\text{ A}; V_{GE} = 0\text{ V}$		1.95	2.2	V
				1.95		V
Q_{rr}	reverse recovery charge	$V_R = 600\text{ V}$ $di_F/dt = -1600\text{ A}/\mu\text{s}$ $I_F = 100\text{ A}; V_{GE} = 0\text{ V}$	$T_{VJ} = 125^\circ\text{C}$		12.5	μC
I_{RM}	max. reverse recovery current				100	A
t_{rr}	reverse recovery time				350	ns
E_{rec}	reverse recovery energy				4	mJ
R_{thJC}	thermal resistance junction to case	(per diode)			0.4	K/W

 $T_C = 25^\circ\text{C}$ unless otherwise stated

Module

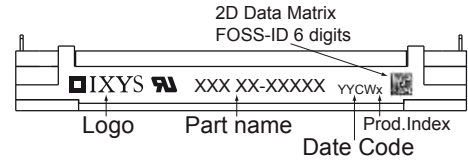
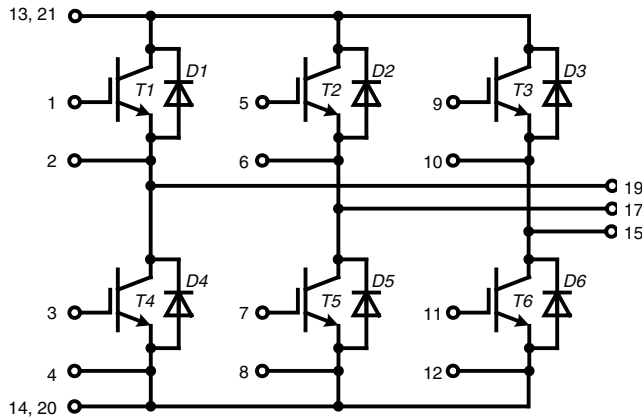
Symbol	Definitions	Conditions	Ratings			Unit
			min.	typ.	max.	
T_{VJ}	<i>operating temperature</i>		-40		125	°C
T_{VJM}	<i>max. virtual junction temperature</i>				150	°C
T_{stg}	<i>storage temperature</i>		-40		125	°C
V_{ISOL}	<i>isolation voltage</i>	$I_{ISOL} \leq 1 \text{ mA}; 50/60 \text{ Hz}$			3000	V~
CTI	<i>comparative tracking index</i>				200	
M_d	<i>mounting torque (M5)</i>		3		6	Nm
d_s	<i>creep distance on surface</i>		10			mm
d_A	<i>strike distance through air</i>		7.5			mm
$R_{pin-chip}$	<i>resistance pin to chip</i>			2.5		mΩ
R_{thCH}	<i>thermal resistance case to heatsink</i>	with heatsink compound		0.02		K/W
Weight				300		g

Equivalent Circuits for Simulation


Symbol	Definitions	Conditions		Ratings			Unit
				min.	typ.	max.	
V_0	<i>IGBT</i>	T1 - T6	$T_{VJ} = 150^\circ\text{C}$			1.1	V
R_0						13.8	mΩ
V_0	<i>free wheeling diode</i>	D1 - D6	$T_{VJ} = 150^\circ\text{C}$			1.25	V
R_0						8.5	mΩ

$T_C = 25^\circ\text{C}$ unless otherwise stated

Circuit Diagram

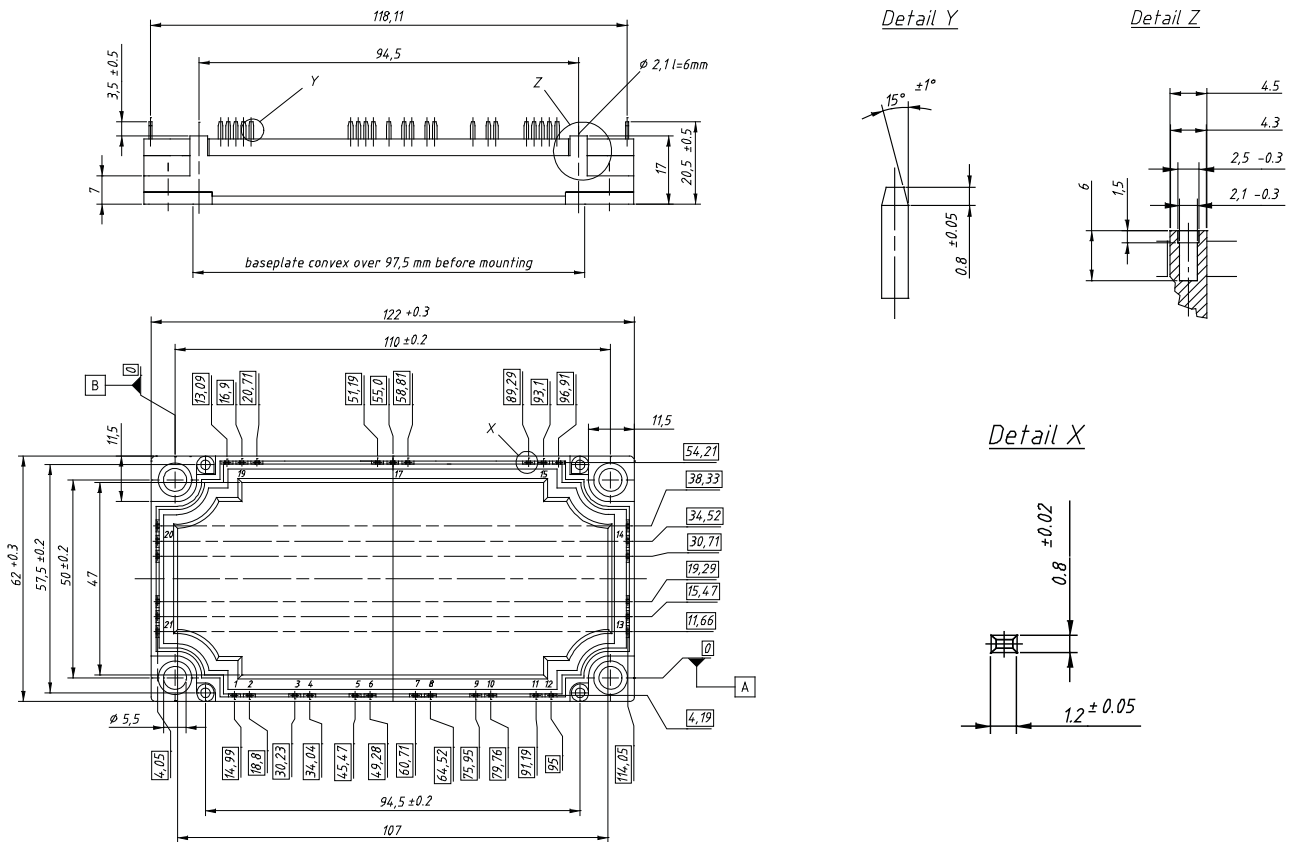


Part number

- M = Module
- I = IGBT
- X = XPT
- A = standard
- 101 = Current Rating [A]
- W = Six-Pack
- 1200 = Reverse Voltage [V]
- EH = E3-Pack

Outline Drawing

Dimensions in mm (1 mm = 0.0394")



Product Marking

Ordering	Part Name	Marking on Product	Delivering Mode	Base Qty	Ordering Code
Standard	MIXA101W1200EH	MIXA101W1200EH	Box	5	511591

Transistor T1 - T6

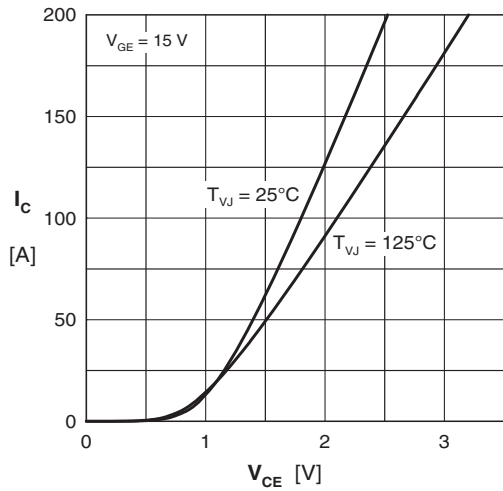


Fig. 1 Typ. output characteristics

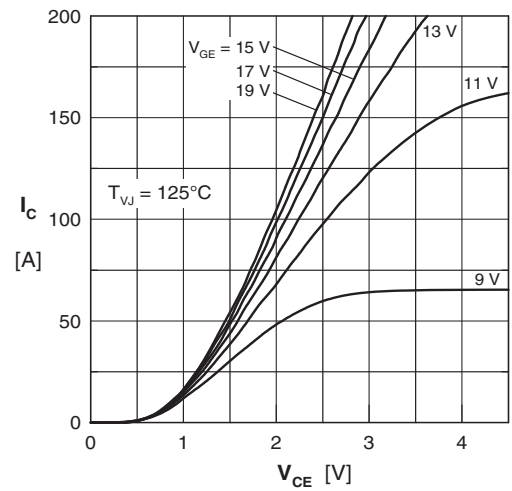


Fig. 2 Typ. output characteristics

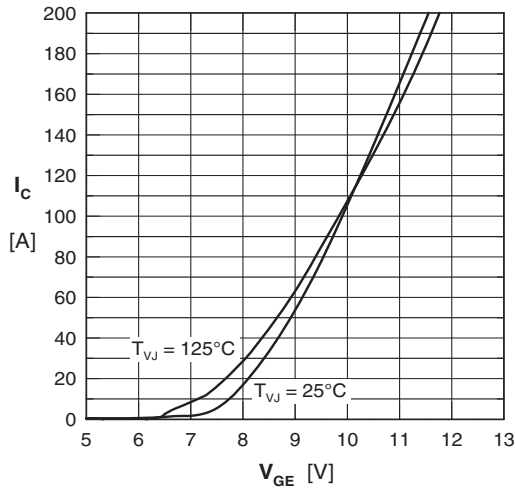


Fig. 3 Typ. transfer characteristics

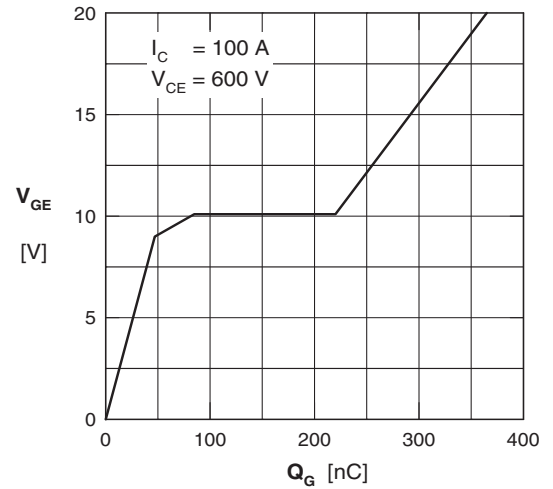


Fig. 4 Typ. turn-on gate charge

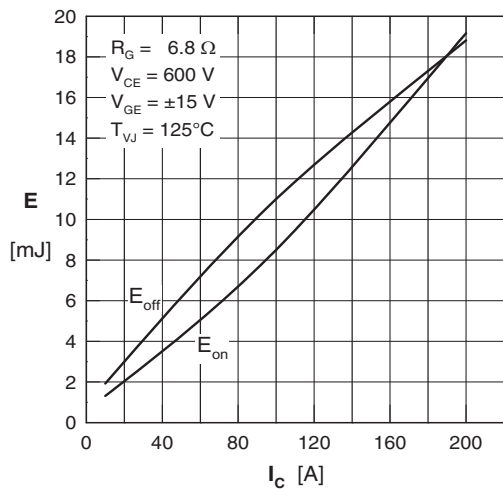


Fig. 5 Typ. switching energy vs. collector current

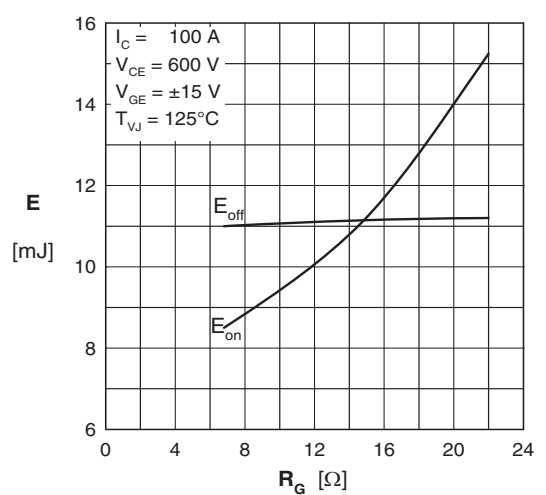


Fig. 6 Typ. switching energy vs. gate resistance

Inverter D1 - D6

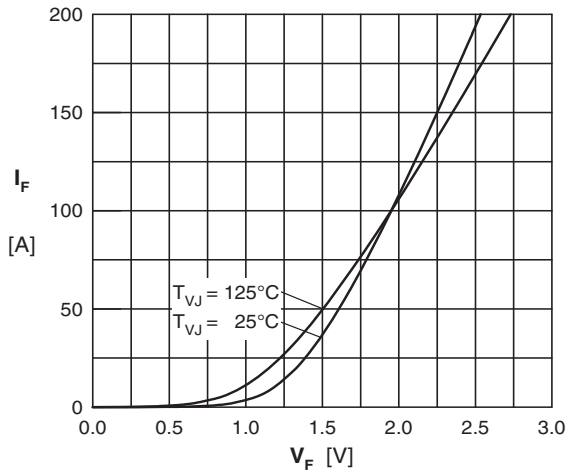


Fig. 7 Typ. Forward current versus V_F

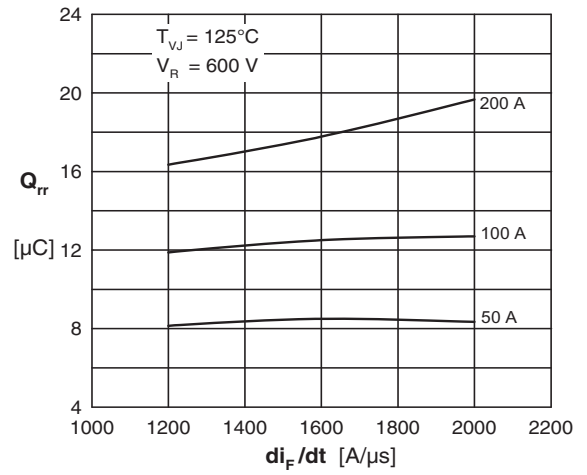


Fig. 8 Typ. reverse recov.charge Q_{rr} vs. di/dt

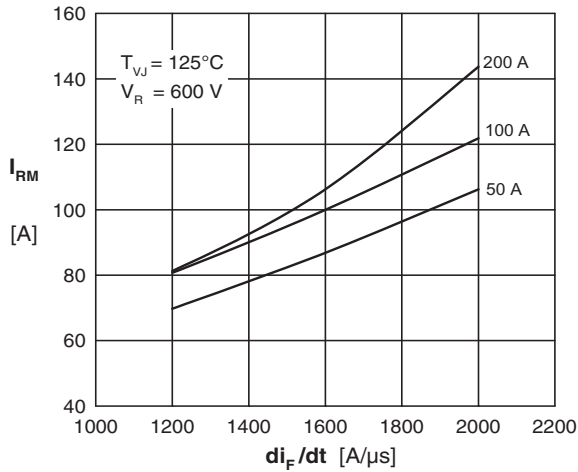


Fig. 9 Typ. peak reverse current I_{RM} vs. di/dt

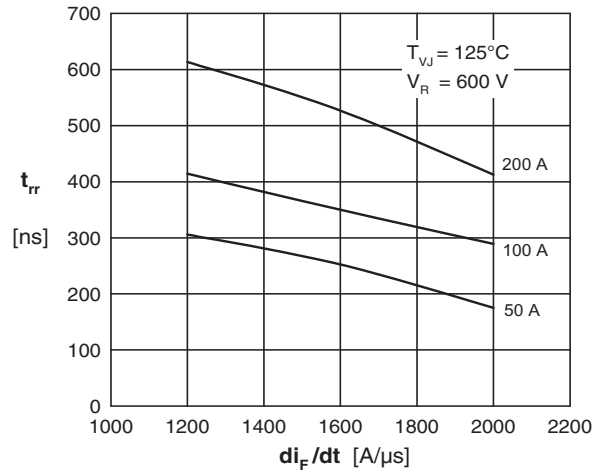


Fig. 10 Typ. recovery time t_{rr} versus di/dt

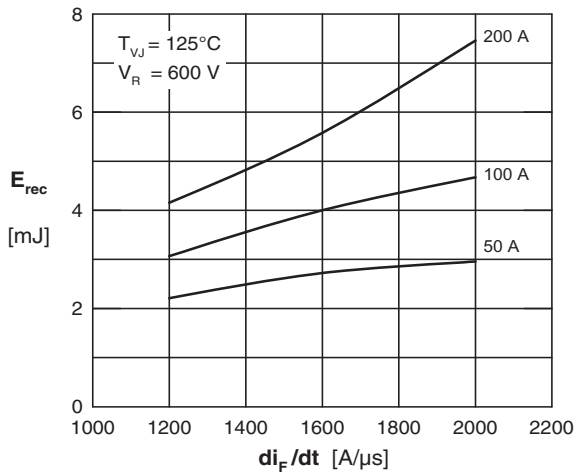


Fig. 11 Typ. recovery energy E_{rec} versus di/dt

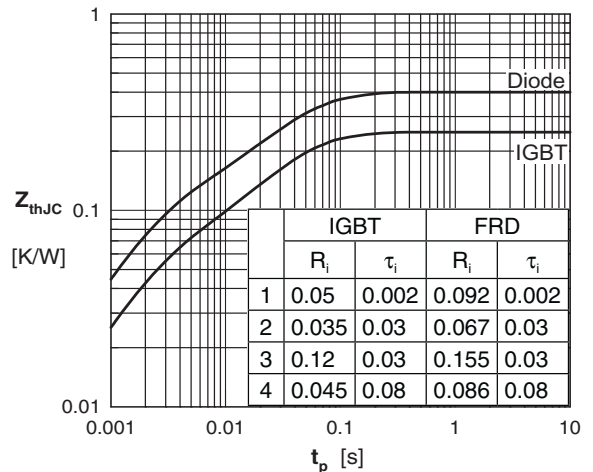


Fig. 12 Typ. transient thermal impedance