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!

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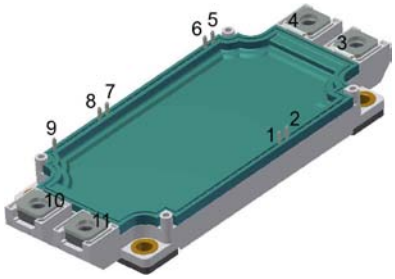
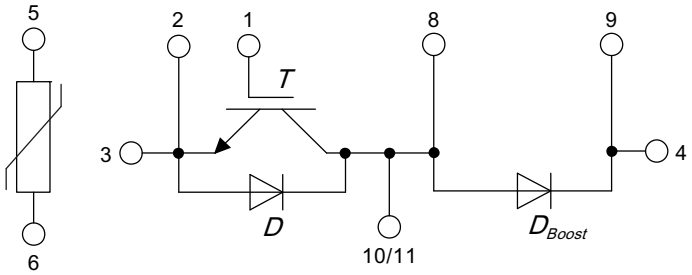
XPT IGBT Module

V_{CES} = 1200 V
I_{C25} = 360 A
$V_{CE(sat)}$ = 1.8 V

Boost chopper + free wheeling Diodes + NTC

Part number
MIXA225RF1200TSF





Features / Advantages:

- High level of integration - only one power semiconductor module required for the whole drive
- Rugged XPT design (Xtreme light Punch Through) results in:
  - short circuit rated for 10 µsec.
  - very low gate charge
  - low EMI
  - square RBSOA @ 3x Ic
- Thin wafer technology combined with the XPT design results in a competitive low $V_{CE(sat)}$
- Temperature sense included
- SONIC™ diode
  - fast and soft reverse recovery
  - low operating forward voltage

Applications:

- Brake for AC motor drives
- Boost chopper
- Switch reluctance drives

Package: SimBus F

- Industry standard outline
- RoHS compliant
- Soldering pins for PCB mounting
- Height: 17 mm
- Base plate: Copper internally DCB isolated
- Advanced power cycling

IGBT *T*				Ratings			
Symbol	**Definitions**	**Conditions**		**min.**	**typ.**	**max.**	**Unit**
V_{CES}	*collector emitter voltage*		T_{VJ} = 25°C to 125°C			1200	V
V_{GES}	*max. DC gate voltage*					±20	V
V_{GEM}	*max. transient gate emitter voltage*					±30	V
I_{C25}	*collector current*		T_C = 25°C			360	A
I_{C80}			T_C = 80°C			250	A
P_{tot}	*total power dissipation*		T_C = 25°C			1100	W
$V_{CE(sat)}$	*collector emitter saturation voltage*	I_C = 225 A; V_{GE} = 15 V	T_{VJ} = 25°C		1.8	2.1	V
			T_{VJ} = 125°C		2.1		V
$V_{GE(th)}$	*gate emitter threshold voltage*	I_C = 9 mA; V_{GE} = V_{CE}	T_{VJ} = 25°C	5.4		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		0.3		mA
I_{GES}	*gate emitter leakage current*	V_{GE} = ±20 V; V_{CE} = 0 V				1.5	µA
$Q_{G(on)}$	*total gate charge*	V_{CE} = 600 V; V_{GE} = 15 V; I_C = 225 A			690		nC
$t_{d(on)}$	*turn-on delay time*	inductive load V_{CE} = 600 V; I_C = 225 A V_{GE} = ±15 V; R_G = 3.3 Ω	T_{VJ} = 125°C		60		ns
t_r	*current rise time*				70		ns
$t_{d(off)}$	*turn-off delay time*				280		ns
t_f	*current fall time*				310		ns
E_{on}	*turn-on energy per pulse*				20		mJ
E_{off}	*turn-off energy per pulse*				27		mJ
RBSOA	*reverse bias safe operating area*	V_{GE} = ±15 V; R_G = 3.3 Ω	T_{VJ} = 125°C				
I_{CM}		V_{CEmax} = 1200 V				500	A
SCSOA	*short circuit safe operating area*	V_{CEmax} = 1200 V					
t_{SC}	*short circuit duration*	V_{CE} = 900 V; V_{GE} = ±15 V;	T_{VJ} = 125°C			10	µs
I_{SC}	*short circuit current*	R_G = 3.3 Ω; non-repetitive			900		A
R_{thJC}	*thermal resistance junction to case*					0.115	K/W
R_{thCH}	*thermal resistance case to heatsink*				0.045		K/W

Diode D_{Boost}							
V_{RRM}	*max. repetitive reverse voltage*		T_{VJ} = 25°C			1200	V
I_{F25}	*forward current*		T_C = 25°C			265	A
I_{F80}			T_C = 80°C			185	A
V_F	*forward voltage*	I_F = 225 A; V_{GE} = 0 V	T_{VJ} = 25°C		1.80	2.10	V
			T_{VJ} = 125°C		1.70		V
I_R	*reverse current*	V_R = V_{RRM}	T_{VJ} = 25°C			0.3	mA
			T_{VJ} = 125°C		0.3		mA
Q_{rr}	*reverse recovery charge*	V_R = 600 V $-di_F/dt$ = 3300 A/µs I_F = 225 A; V_{GE} = 0 V	T_{VJ} = 125°C		32		µC
I_{RM}	*max. reverse recovery current*				250		A
t_{rr}	*reverse recovery time*				340		ns
E_{rec}	*reverse recovery energy*				11.7		mJ
R_{thJC}	*thermal resistance junction to case*					0.145	K/W
R_{thCH}	*thermal resistance case to heatsink*				0.05		K/W

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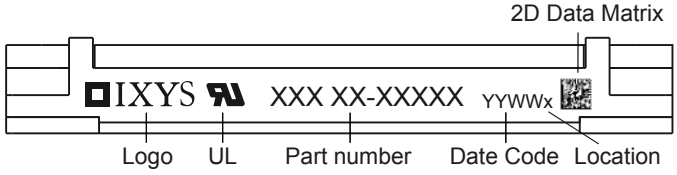
Diode *D*				Ratings			
Symbol	**Definitions**	**Conditions**		**min.**	**typ.**	**max.**	**Unit**
V_{RRM}	*max. repetitive reverse voltage*		T_{VJ} = 25°C			1200	V
I_{F25}	*forward current*		T_C = 25°C			65	A
I_{F80}			T_C = 80°C			45	A
V_F	*forward voltage*	I_F = 60 A; V_{GE} = 0 V	T_{VJ} = 25°C		2.0	2.2	V
			T_{VJ} = 125°C		2.0		V
I_R	*reverse current*	$V_R = V_{RRM}$	T_{VJ} = 25°C			*	mA
	* not applicable, see Ices value of IGBT T		T_{VJ} = 125°C		*		mA
R_{thJC}	*thermal resistance junction to case*					0.5	K/W
R_{thCH}	*thermal resistance case to heatsink*				0.2		K/W

Package SimBus F				Ratings			
Symbol	**Definitions**	**Conditions**		**min.**	**typ.**	**max.**	**Unit**
I_{RMS}	*RMS current*	per terminal					A
T_{stg}	*storage temperature*			-40		125	°C
T_{VJM}	*virtual junction temperature*			-40		150	°C
Weight					350		g
		$I_{ISOL} \leq$ 1 mA; 50/60 Hz				3400	V~
M_D	*mounting torque (M5)*			3		6	Nm
M_T	*terminal torque (M6)*			3		6	Nm
$d_{Spp/App}$	*creepage distance on surface / striking distance through air*		*terminal to terminal*	12.7			mm
$d_{Spb/Apb}$			*terminal to backside*	10.0			mm
V_{ISOL}	*isolation voltage*	t = 1 second	50/60 Hz, RMS, $I_{ISOL} \leq$ 1 mA	3000			V
		t = 1 minute		2500			V
$R_{term-chip}$	*resistance terminal to chip*	$V = V_{CEsat} + 2x\ R_{term-chip} \cdot I_C$ resp. $V = V_F + 2x\ R \cdot I_F$			0.65		mΩ



Part number

M = Module
I = IGBT
X = XPT
A = standard
225 = Current Rating [A]
RF = Boost / brake chopper + free wheeling diode
1200 = Reverse Voltage [V]
T = NTC
EH = E3-Pack

Ordering	Part Name	Marking on Product	Delivering Mode	Base Qty	Ordering Code
Standard	MIXA225RF1200TSF	MIXA225RF1200TSF	Box	3	511581

Temperature Sensor NTC			Ratings			
Symbol	**Definitions**	**Conditions**	**min.**	**typ.**	**max.**	**Unit**
R_{25}	*resistance*	T_C = 25°C	4.75	5.0	5.25	kΩ
$B_{25/50}$	*temperature coefficient*			3375		K

Outlines SimBus F