

Drive with the IXYS XPT-IGBT

IXYS USED ITS EXPERTISE TO DESIGN THE OPTIMAL IGBT FOR MOTOR DRIVES APPLICATIONS

2010

Overview:

IXYS introduces the XPT IGBT, IXYS' latest generation of short-circuit rated high voltage IGBTs with fast switching and low conduction losses. This IGBT family was developed in IXYS' internal fabs using advanced processing and design technologies. These XPT IGBTs are designed for parallel operation, thereby enabling high power module design and scaling up the power capability with the use of multi-discrete devices. These devices are optimized for use in a variety of power control applications including motor drive, UPS, power supplies, inverters and solar power inverters.

The benefits of merging the IXYS cell design with XPT (Xtreme light Punch Through) wafer technology result in competitive static and dynamic behavior as well as the rugged and reliable operation during power turn-off testing. The XPT IGBT has a low $V_{ce(sat)}$ (typical 1.8V at 25 degrees C). Combining the XPT IGBT with the recently introduced IXYS SONIC diode delivers fast and soft switching behavior and gives excellent EMI performance regardless of the level of the switched current.

The introduced 1200V XPT IGBTs are rated at 10A, 15A, 25A, 35A, 50A and 75A. These IGBTs will be available in standard module and discrete packages as well as being available to be packaged in customer specific designs. The XPT IGBT/Sonic combination range is available in Converter Brake Inverter module (CBI) and six-pack topologies in 3 different package sizes. A diode bridge input rectifier with break chopper supplements the 3-phase inverter six-pack stage in the CBI configuration. The IXA37IF1200HJ is an example of a discrete co-pack containing the XPT IGBT and the Sonic diode integrated in the ISOPLUS247™ package.

With the introduction of the XPT IGBT, IXYS expands its IGBT product range to meet market demands for highly rugged, low loss devices that can be easily paralleled. This new IGBT technology, when combined with our integrated packaging technology, provides superior performance in a high percentage of power switching applications where efficiency and reliability are essential.



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
 - Low EMI
 - Square RBSOA @ 3 x I_c
- Thin wafer technology combined with the XPT design results in a competitive low $V_{ce(sat)}$

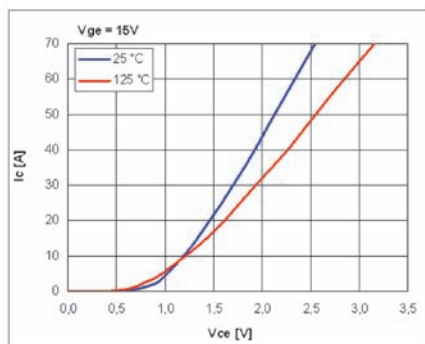
Applications

- AC motor drives
- Solar inverter
- Medical equipment
- Uninterruptible power supply
- Air-conditioning systems
- Welding equipment

SUMMARY TABLE – XPT-IGBT

Part Number	Voltage V	Current		Configuration	Package	Image
		A (80°C)	A (90°C)			
IXA20I1200PB	1200	20			TO 220	
IXA55I1200HJ	1200	55			ISOPLUS 247™	
IXA12IF1200PB	1200	12			TO 220	
IXA12IF1200PC	1200	12			TO 263	
IXA12IF1200HB	1200	12			TO 247	
IXA20IF1200HB	1200	20				
IXA33IF1200HB	1200	33			TO 268	
IXA45IF1200HB	1200	45				
IXA12IF1200TC	1200	12			ISOPLUS 247™	
IXA17IF1200HJ	1200	17				
IXA27IF1200HJ	1200	27				
IXA37IF1200HJ	1200	37				
IXA60IF1200NA	1200	60		SOT 227		
MIXA20W1200MC	1200	20		ECO-PAC2		
MIXA10W1200TMH	1200	10		MiniPack2		
MIXA20W1200TMH	1200	20				
MIXA40W1200TMH	1200	40				
MIXA10W1200TML	1200	10				
MIXA20W1200TML	1200	20				
MIXA40W1200TML	1200	40				
MIXA30W1200TED	1200	30				
MIXA40W1200TED	1200	40				
MIXA60W1200TED	1200	60		E1-Pack		
MIXA80W1200TED	1200	80				
MIXA30W1200TED	1200	30		E2-Pack		
MIXA40W1200TED	1200	40				
MIXA60W1200TED	1200	60		E2-Pack		
MIXA80W1200TED	1200	80				
MIXA10WB1200TMH	1200	10		MiniPack2		
MIXA20WB1200TMH	1200	20				
MIXA10WB1200TML	1200	10		E1-Pack		
MIXA20WB1200TML	1200	20				
MIXA10WB1200TED	1200	10		E2-Pack		
MIXA20WB1200TED	1200	20				
MIXA30WB1200TED	1200	30		E2-Pack		
MIXA40WB1200TED	1200	40				
MIXA60WB1200TEH	1200	60		E3-Pack		
MIXA80WB1200TEH	1200	80				

Positive temperature coefficient



Short circuit rated

