

# 300V GenX3™ IGBTs

NEXT GENERATION OF HIGH SPEED C3 CLASS PT IGBTs

JANUARY 2008

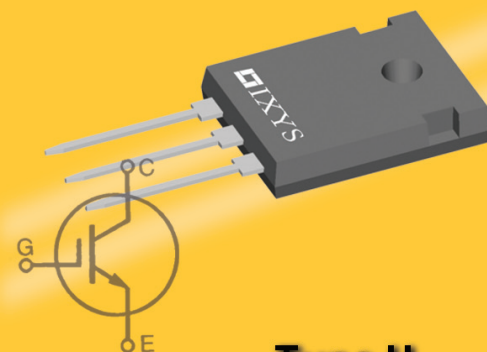
## OVERVIEW

IXYS has introduced a new family of high speed 300V Insulated Gate Bipolar Transistors ("IGBTs") called GenX3™. These 300V GenX3 IGBTs offer switching capabilities up to 150 kHz, with currents ranging from 42A to 120A. Manufactured using the IXYS robust HDMOS IGBT process, the GenX3 are suitable for high power applications.

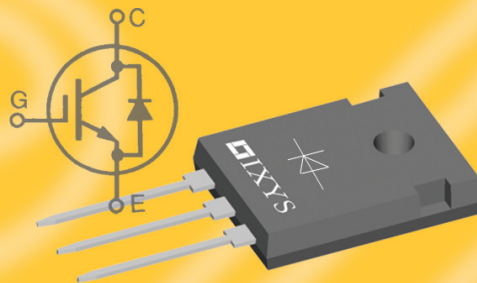
IXYS' 300V GenX3 IGBTs offer a cost-effective alternative to power MOSFETs for applications such as PFC circuits, PDP systems, switch-mode or resonant-mode converters and inverters, and AC/DC motor controls. The combination of high switching speeds and low conduction losses offers power designers a new high value option for switching applications. These UIS rated devices are rugged and robust making them comparable to most rugged power MOSFETs.

These 300V GenX3 IGBTs may also be co-packed with IXYS' high performance HiPerFRED™ Fast Diodes which offer excellent fast recovery due to low reverse charge (Qrr), further improving the GenX3 switching capabilities. The square reverse bias safe operating area (RBSOA) featured in the 300V GenX3 IGBTs improves the clamped inductive load current (ILM) allowing the device to safely switch in a snubberless hard switching application.

These IGBTs are currently available in the TO-247 discrete package. Additional package offerings will be made available upon request.



**Type H  
TO-247**



**Additional Package Types  
Available Upon Request**

## FEATURES

- High Frequency IGBT
- Square RBSOA
- High avalanche capability
- Drive simplicity with MOS Gate turn-on
- High current handling capability

## BENEFITS

- Low cost alternative to MOSFETs in the 300V range
- Low conduction and switching Losses incur high efficiency
- High speed and high current capability
- UIS Rated
- Lead Free package

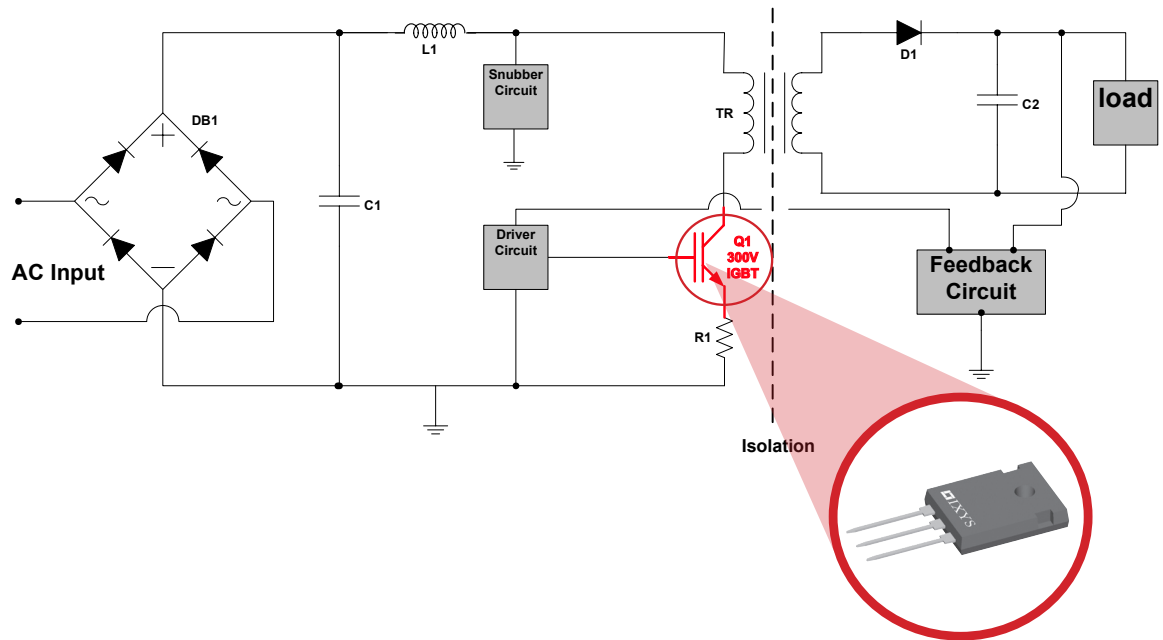
## APPLICATIONS

- Solar system inverters
- Power Factor Correction circuit
- Uninterrupted power supply
- Switch Mode power supply
- Welding
- Motor controls (AC/DC Motors)
- Capacitive discharge circuits

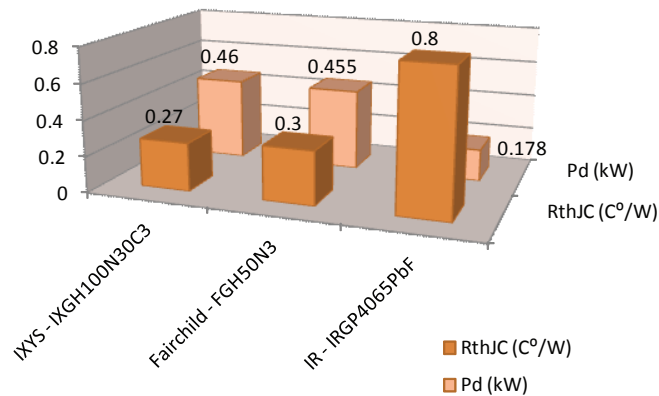
# Gen3 300V IGBTs Summary Table

Part Number	Vces	Ic @ Tc = 25°C	Vce(sat)	Pc @ Tc 25°C W	RthJC (°C/W)	Package
IXGH42N30C3	300V	75A	1.8V	223	0.56	TO-247AD
IXGH60N30C3	300V	75A	1.8V	300	0.42	TO-247AD
IXGH85N30C3	300V	75A	1.9V	333	0.375	TO-247AD
IXGH100N30C3	300V	75A	1.85V	460	0.27	TO-247AD
IXGH120N30C3	300V	75A	2.1V	540	0.23	TO-247AD

## Power Factor Correction (PFC) Application Circuit System



## Competitive Analysis @ 300V



IXYS IXGH100N30C3 yielded the highest maximum power dissipation and lowest thermal resistance in comparison to other major competitor devices. We observed as high as a 40% increase in maximum power dissipation and 55% decrease in thermal resistance over our competitors while still retaining a slightly higher collector current rating. Competitive analysis of the devices listed above were completed with all devices rated with the following parameters. Vces = 300V, Ic = 75A (Tc @ 25°C), standard TO-247 Packaging.

## TO-247 Discrete Package Outline

