

SimBus F... flexible solutions with X2PT IGBT

NEW 17 MM MODULE GENERATION

May 2016

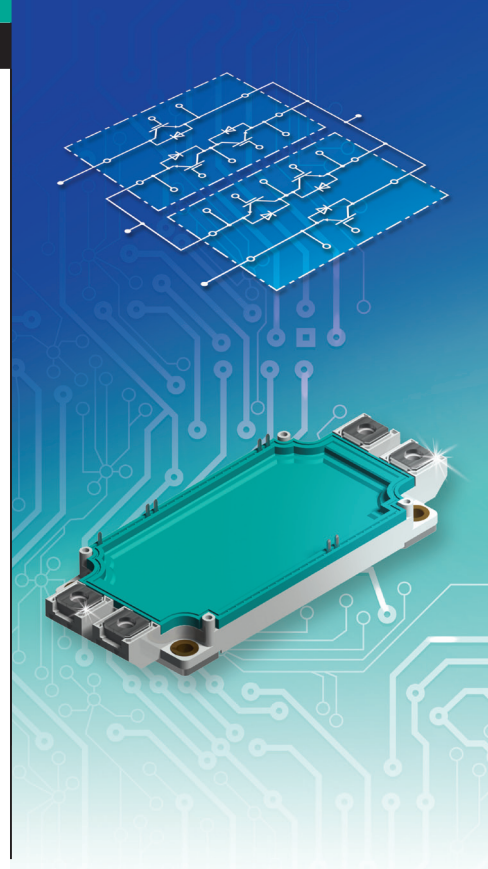
Overview:

SimBus F represents one of the newest package developments of IXYS. This new generation of DCB-isolated copper base modules provide several new features. Combined with the benefits of well-proven technologies SimBus F is an optimized semiconductor product for power conversion with focus on 2-level and 3-level inverter applications. The outline of this package type using the industrial standard height of 17 mm facilitating easy bus bar connections between the rectifier and inverter stages. Direct Copper Bonded (DCB) substrates – also manufactured at IXYS – allow the user 4800 V isolation voltage between terminals and heat sink. Pressfit pins for the control contacts are under evaluation.

SimBus F is a standard module housing optimized for IGBT phase leg configuration featuring high current density and low stray inductance. Equipped with IXYS XPT IGBTs and SONIC free wheeling diodes SimBus F gives the customer a reliable solution which is 100% sourced by IXYS. Common applications for the SimBus F are solar inverters, motor drives, DC to DC chopper systems and UPS power inverters.

The first modules released are the 450A, 300A and 225A dual IGBT and the 225A brake/boost modules equipped with 1200V IXYS XPT IGBTs. The voltage range is extended to 650 V by the dual XPT IGBT 600 A MIXA600PF650TSF and further expanded by the MIXA600AF650TSF (common emitter) and MIXA600CF650TSF (common collector) options. Under development are 1700V, 300A and 450A dual IGBT in phase legs configuration.

MIXA430LD1200TSF is one half of a 3-level T-type (or NPC2 type) inverter topology using a combination of 650V and 1200V XPT IGBTs. Two of these modules in anti-parallel can form a simple solution for a T-type multi-level inverter featuring a reinforced switch to DC- neutral. With 1700V IGBTs and the combination of 1200V/1700V IGBTs, multi-level solutions are planned for 650V AC lines.



Features

- New cell design results in:
 - lower E_{off}
 - lower V_{cesat}
 - T_{jmax} of 175°C
 - reduced R_{th}
 - very low gate charge
 - easy paralleling
 - square RBSOA @ $2 \times I_{nom}$
 - short circuit rated for 10 μs
- SONIC™ diode
 - fast and soft reverse recovery
 - low operating forward voltage

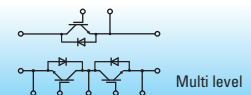
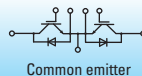
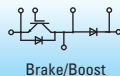
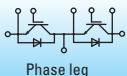
Applications

- AC motor control
- Servo and robot drives
- Solar inverter
- UPS inverter
- Welding equipment
- Induction heating
- Pumps or fan controls

Options:

- Phase Change Material (PCM)
- Press fit pin (3rd qtr 2016)

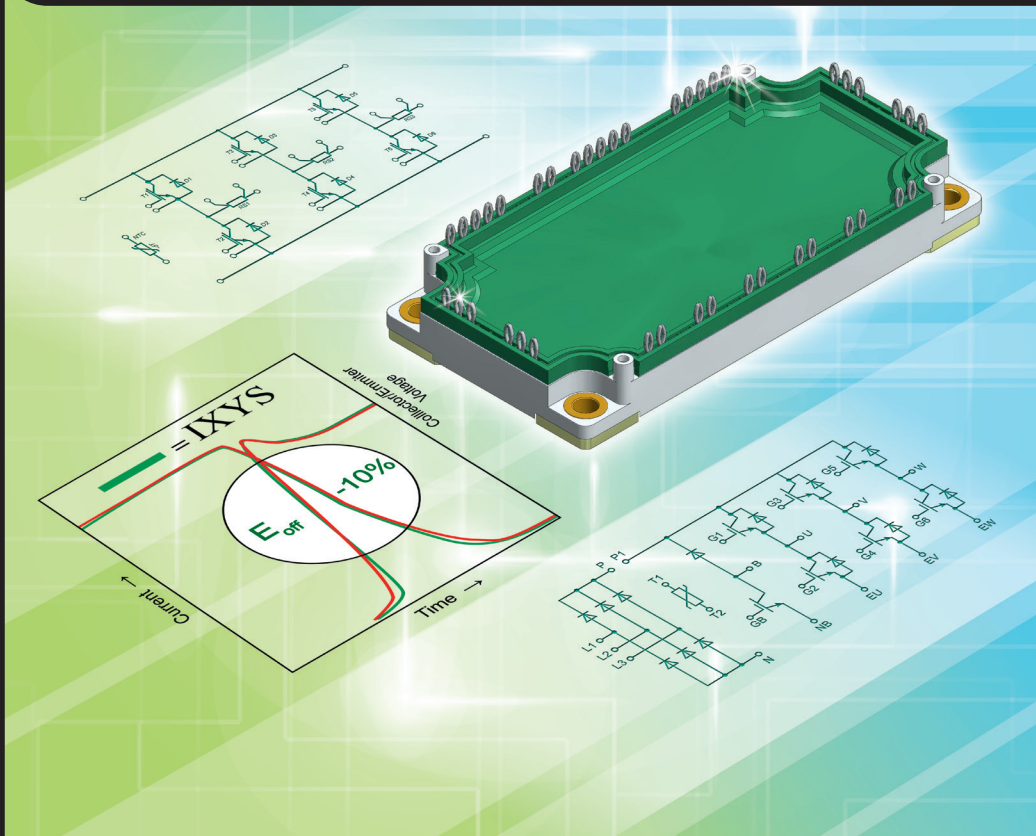
1st Products	V_{CES}	I_{c80}	Circuit
MIXG 330PF1200TSF	1200 V	395 A	Phase leg
MIXG 490PF1200TSF	1200 V	580 A	Phase leg
MIXG 660PF1200TSF	1200 V	780 A	Phase leg
MIXG 330PF1200STSF	1200 V	395 A	Phase leg with Shunt
MIXG 490PF1200STSF	1200 V	580 A	Phase leg with Shunt
MIXG 660PF1200STSF	1200 V	780 A	Phase leg with Shunt
MIXG 660RF1200STSF	1200 V	780 A	Controlled Brake
MIXG 300PF1700TSF	1700 V	300 A	Phase leg
MIXG 450PF1700TSF	1700 V	450 A	Phase leg



X2PT... the efficient solution for motor drives

NEW 2ND XPT GENERATION

May 2016



Overview:

X2PT™ IGBTs are the second generation of Xtreme Light Punch Through XPT IGBTs. With an improved vertical structure and design of the X2PT™ IGBT the benefits are a superior short circuit capability, 175°C max junction temperature, a further reduced $V_{CE(sat)}$ and lower turn-off losses (E_{off}) resulting in a competitive performance to latest trench devices but at reduced R_{th} .

This extremely rugged IGBT platform is ideal for critical applications that require low conduction and low switching losses with a 10 μ s short circuit withstand capability.

A large portfolio of modules with X2PT™ IGBTs co-packaged with ultrafast soft recovery SONIC™ diodes are available for applications such as UPS, Motor Drives, welding and solar inverters.

Features

- New cell design results in:
 - lower E_{off}
 - lower V_{cesat}
 - T_{jmax} of 175°C
 - reduced R_{th}
 - very low gate charge
 - easy paralleling
 - square RBSOA @ $2 \times I_{nom}$
 - short circuit rated for 10 μ s
- Designs for 1200V and 1700V IGBTs

Applications

- AC motor control
- Servo and robot drives
- Solar inverter
- UPS inverter
- Welding equipment
- Inductive heating
- Pumps
- Fans

Options:

- Press fit pin
- Phase Change Material (PCM)

1st Products	V_{CES}	Circuit	Package
MIXG 70W1200TED	1200V	6-pack	E2
MIXG 90W1200TED	1200V	6-pack	E2
MIXG 70WB1200TEH	1200V	CBI	E3
MIXG 90WB1200TEH	1200V	CBI	E3
MIXG 120W1200DPFTEH	1200V	6-pack, HiPerFRED FWD	E3
MIXG 120W1200TEH	1200V	6-pack	E3
MIXG 180W1200TEH	1200V	6-pack	E3
MIXG 240W1200TEH	1200V	6-pack	E3
MIXG 120W1200STEH	1200V	6-pack with Shunt	E3
MIXG 180W1200STEH	1200V	6-pack with Shunt	E3
MIXG 240W1200STEH	1200V	6-pack with Shunt	E3
MIXG 360PF1200TED	1200V	Phase leg	E2