



1.2kV & 1.7kV Generation 5 Trench Gate H1 & H2 IGBT Range

High Performance in Renewable Applications



Dynex H1 and H2 devices are half bridge generation 5-trench gate IGBT modules, with enhanced field stop and implantation technology. The modules are designed in 1200V and 1700V ranges.

The H1 and H2 package offer wide reverse bias safe operating area (RBSOA) plus 10 μ s short circuit withstand.

The IGBTs have a high reliability soldering system and solder layer uniformity control technology to strengthen thermal cycling capability. In addition, the product offers ultrasonic terminal welding technology with low impedance, large load capacity and strong resistance to mechanical shock.

They incorporate an electrically isolated base plate and low inductance construction, enabling designers to optimise circuit layouts and utilise grounded heat sinks for safety.

What are the package dimensions?

- The H1 package scales 250mm x 89mm and weigh 1200g
- The H2 package scales 172 x 89 x 38mm and weigh 900g

What are the operating temperatures of the range?

- The module has a chip junction temperature operating range from -40°C to a maximum of 150°C.

Key Features:

- ✓ 1200V & 1700V
- ✓ Currents up to 2400A
- ✓ Generation 5 Trench Gate IGBT
- ✓ Cu Base with Al₂O₃ Substrates
- ✓ 10 μ s Short Circuit Withstand
- ✓ Half-bridge IGBT with built-in NTC resistor
- ✓ Low thermal resistance
- ✓ 150°C operating temperature, 175°C maximum junction temperature
- ✓ Low V_{ce(sat)} variant

Applications

- ✓ Motor Drives
- ✓ High Power Converters
- ✓ Renewable Energy Power Conversion
- ✓ High Reliability Inverters
- ✓ Traction systems

1200V IGBT Modules

Part Number	Configuration	Production Status	IC (A)	at TC (°C)	VCE (sat) @ TC=25°C (V)	Total Esw @ TC=125°C (mJ)	Rth(j-c) (per switch) (°C/kW)	Baseplate Dims (mm)	Isolation Voltage	Tech
DIM1400H1HS12-PA500	Half Bridge	New	1400	100	1.8	472	20	250 x 89	4kV	TSPT
DIM900H2HS12-PA500	Half Bridge	MP	900	90	1.75	288	29.5	172 x 89	4kV	TSPT

1400A H1

Key parameter	Test Condition	Dynex
*VCE (sat) /V	Tvj=25°C, VGE = 15V, Ic = 1400A Tvj=125°C, VGE = 15V, Ic = 140A	1.80 2.15
*VF/V	Tvj=25°C, VGE = 15V, Ic = 1400A Tvj=125°C, VGE = 15V, Ic = 1400A	1.90 2.10
EON/mJ EOFF/mJ Erec/mJ	Ic = 1400A, VCE = 600V, VGE = ±15V, RG(ON) = 1.0Ω, RG(OFF) = 0.5Ω	208 285 102

900A H2

Key parameter	Test Condition	Dynex
*VCE (sat) /V	Tvj=25°C, VGE = 15V, Ic = 900A Tvj=125°C, VGE = 15V, Ic = 900A Tvj=150°C, VGE = 15V, Ic = 900A	1.75 2.10 2.20
*VF/V	Tvj=25°C, VGE = 15V, Ic = 900A Tvj=125°C, VGE = 15V, Ic = 900A	1.85 2.05
EON/mJ EOFF/mJ Erec/mJ	Ic = 900A, VCE = 600V, VGE = ±15V, RG(ON) = 1.3Ω, RG(OFF) = 0.5Ω	31 84 42

1700V IGBT Modules

Part Number	Configuration	Production Status	IC (A)	at TC (°C)	VCE (sat) @ TC=25°C (V)	Total Esw @ TC=125°C (mJ)	Rth(j-c) (per switch) (°C/kW)	Baseplate Dims (mm)	Isolation Voltage	Tech
DIM1000H1HS17-PA500	Half Bridge	MP	1000	104	1.85	720	20	250 x 89	4kV	TSPT
DIM650H2HS17-PA500	Half Bridge	MP	650	105	1.85	395	30	172 x 89	4kV	TSPT

1000A H1

Key parameter	Test Condition	Dynex
*VCE (sat) /V	Tvj=25°C, VGE = 15V, Ic = 1000A Tvj=125°C, VGE = 15V, Ic = 1000A	1.85 2.20
*VF/V	Tvj=25°C, VGE = 15V, Ic = 1000A Tvj=125°C, VGE = 15V, Ic = 1000A	1.80 1.90
EON/mJ EOFF/mJ Erec/mJ	Ic = 1000A, VCE = 900V, VGE = ±15V, RG(ON) = 1.0Ω, RG(OFF) = 0.5Ω	385 360 235

650A H2

Key parameter	Test Condition	Dynex
*VCE (sat) /V	Tvj=25°C, VGE = 15V, Ic = 650A Tvj=125°C, VGE = 15V, Ic = 650A	1.85 2.20
*VF/V	Tvj=25°C, VGE = 15V, Ic = 650A Tvj=125°C, VGE = 15V, Ic = 650A	1.80 1.90
EON/mJ EOFF/mJ Erec/mJ	Ic = 650A, VCE = 900V, VGE = ±15V, RG(ON) = 1.3Ω, RG(OFF) = 0.5Ω	210 210 190