



VISHAY INTERTECHNOLOGY, INC.



RoHS
COMPLIANT



IGBT MODULES

MTP

ECONO-2

INT-A-Pak

SIP

SOT-227



IGBT Modules



High-efficiency IGBT modules from Vishay Intertechnology feature industry-standard outlines with a choice of pt and npt IGBT technologies. Configured as single switches, inverters, choppers, half-bridges, or in custom configurations, these modules are the ideal choice for high-frequency power applications that demand high-efficiency performance. They are designed for use as a main switching device in switchmode power supplies, uninterruptible power supplies, industrial welding, motor drives, and power factor correction systems. Typical applications include boost and buck converters, forward and double forward converters, half bridges, full bridges (H-bridge), and three-phase bridges. Low thermal resistance allows Vishay IGBT modules to operate at higher case temperatures while maintaining the operating junction temperature within safe limits. Electrically isolated from the circuit, the base plate is exposed, allowing for direct mounting to the heat sink. With improved current sharing and lower operating junction temperatures, designers can now achieve higher system reliability. Vishay IGBT modules are 100 % lead (Pb)-free and RoHS-compliant and meet industry standards for safety including UL approval.

Features






- Wide range of industry-standard package styles
- Direct mount on heat sink
- Choice of pt and npt IGBT technologies
- Low- $V_{ce(on)}$ IGBT
- Switching frequency from 1 kHz to 150 kHz
- Optimized anti-parallel ultra-fast diode with soft recovery characteristics
- Rugged transient performance
- High isolation voltage (2500 V)
- 100 % lead (Pb)-free and RoHS-compliant
- Low thermal resistance
- Wide operating temperature range (– 40 °C to + 150 °C)
- UL-approved

Options

- Short-circuit capability available on many configurations
- Optional SMD integrated thermistor
- Customizable for specific application needs

Applications

- Industrial high-frequency welding
- Switchmode power supplies
- Uninterruptible power supplies
- Motor drives
- Power factor correction

| Product | Package Model | Maximum Dimensions, LWH [mm] | Pin-out | Number of Connectors | Circuit Configurations Available | Voltage Range [V] | Current Ratings at 25 °C [A] | Frequency Speed Grade [kHz] | Part Number Series |
|---|---------------|------------------------------|-----------------|----------------------|--|-------------------|------------------------------|-----------------------------|---|
| IGBT Technology – npt with short circuit capability or pt silicon available | | | | | | | | | |
|  | SIP | 62.4 x 22 x 7.9 | Solderable pins | Up to 19 | 6PAK inverter Customized configuration | 600 | 8 – 30 | 1 – 60 | CPV... |
|  | MTP | 63.5 x 32.5 x 16 | Solderable pins | Up to 12 | Half bridge Full bridge Chopper Customized configuration | 600 – 1200 | 30 – 50 | 8 – 150 | MT060WHTAPBF MT120UFAPBF MT060ULSTAPBF |
|  | IAP | 94 x 35 x 29 | Screwable | 7 | Half bridge Single switch Customized configuration | 600 – 1200 | 100 – 200 | dc – 60 | GA...TS... GB...TS... GB...SS... |
|  | ECONO-2 | 107.8 x 45.4 x 17 | Solderable pins | Up to 50 | 6PAK inverter 4PAK PIM (bridge-brake-inverter) Customized configuration | 600 – 1200 | 15 – 75 | 8 – 60 | GB...XF... GB...YF... GB...RF... |
|  | SOT-227 | 38.3 x 25.7 x 12.3 | Screwable | 4 | Single switch Chopper Customized configuration | 600 – 1200 | 50 – 200 | dc – 150 | GA...SA...P GA...DA...P GB...LA...P GB...NA...P GB...DA...P |



| Configuration | Voltage [V] | Current Rating [A] @ 25 °C | MTP | ECONO-2 |
|---------------------|-------------|----------------------------|--|---|
| | | |  |  |
| | | | 8 kHz – 150 kHz | 8 kHz – 60 kHz |
| 4PAK | 1200 | 50 | | GB50YF120N |
| | | 75 | | GB75YF120N |
| 6PAK | 600 | 8 | | |
| | | 15 | | |
| | | 20 | | GB20XF60K |
| | | 30 | | GB30XF60K |
| | | 50 | | GB50XF60K |
| | | 75 | | GB75XF60K |
| | 1200 | 10 | GB05XP120KTPBF | GB10XF120K |
| | | 15 | GB15XP120KTPBF | GB15XF120K |
| | | 25 | | GB25XF120K |
| | | 35 | | GB35XF120K |
| PIM with Thermistor | 600 | 50 | | GB50XF120K |
| | | 10 | | GB10RF60K |
| | | 15 | | GB15RF60K |
| | | 20 | | GB20RF60K |
| | | 30 | | GB30RF60K |
| | 1200 | 50 | | GB50RF60K |
| | | 10 | | GB10RF120K |
| | | 15 | | GB15RF120K |
| | | 25 | | GB25RF120K |
| | | Full Bridge | 500 | 19 |
| 600 | 25 | 25MT060WFAPBF | | |
| 1200 | 20 | 20MT120UFAPBF | | |
| Half Bridge | 600 | 50 | 50MT060WHTAPBF | |
| | | 75 | 70MT060WHTAPBF | |
| | | 100 | | |
| | | 150 | | |
| | | 200 | | |
| | | 200 | | |
| | 1200 | 40 | 40MT120WHAPBF | |
| | | 75 | | |
| | | 100 | | |
| | | 125 | | |
| Single Switch | 600 | 100 | | |
| | | 200 | | |
| | | 400 | | |
| 1200 | 64 | | | |
| | 75 | | | |
| Chopper | 600 | 50 | 50MT060ULSTAPBF | |
| | | 70 | | |
| | | 100 | | |
| | 1200 | 100 – 150 | | |
| | | 50 | | |

Key: Frequency Speed Grade Released In Development

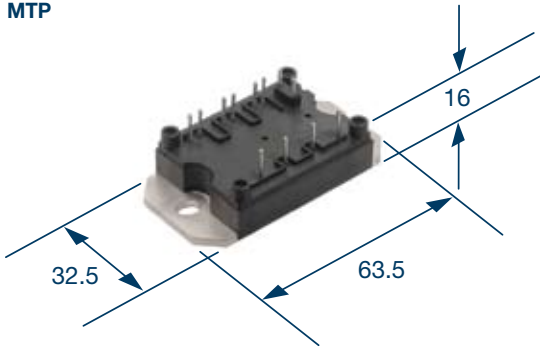


IGBT Modules

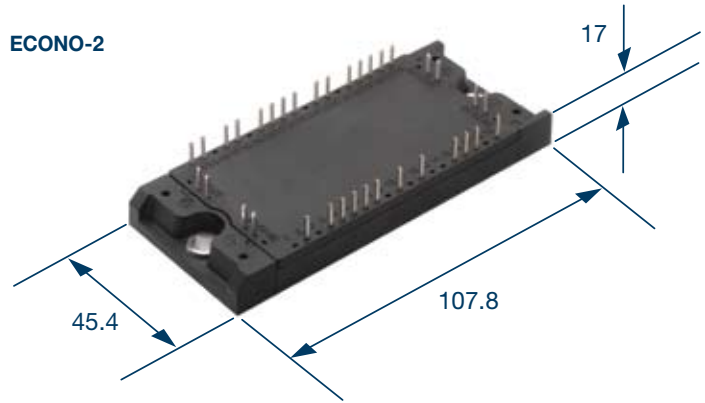


Dimensions in Millimeters

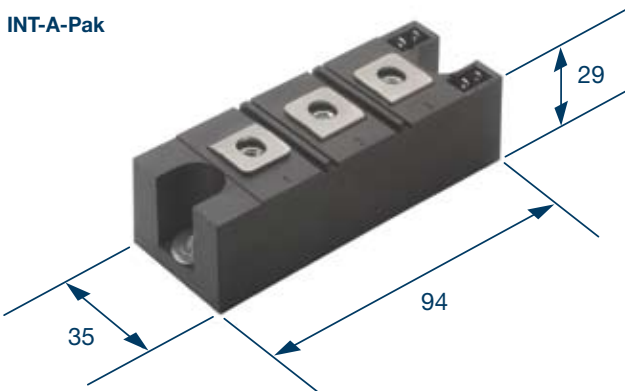
MTP



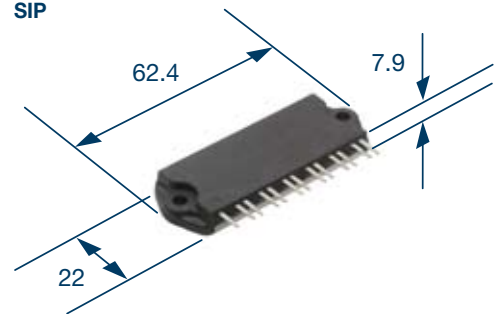
ECONO-2



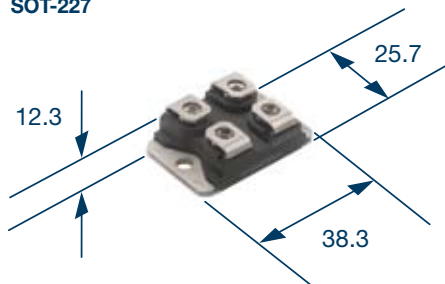
INT-A-Pak



SIP



SOT-227



NOTICE Specifications of the products displayed herein are subject to change without notice. Vishay Intertechnology, Inc., or anyone on its behalf, assumes no responsibility or liability for any errors or inaccuracies. Information contained herein is intended to provide a product description only. No license, express or implied, by estoppel or otherwise, to any intellectual property rights is granted by this document. Except as provided in Vishay's terms and conditions of sale for such products, Vishay assumes no liability whatsoever, and disclaims any express or implied warranty, relating to sale and/or use of Vishay products including liability or warranties relating to fitness for a particular purpose, merchantability, or infringement of any patent, copyright, or other intellectual property right. The products shown herein are not designed for use in medical, life-saving, or life-sustaining applications. Customers using or selling these products for use in such applications do so at their own risk and agree to fully indemnify Vishay for any damages resulting from such improper use or sale.

SEMICONDUCTORS:

Rectifiers • High-Power Diodes and Thyristors • Small-Signal Diodes • Zener and Suppressor Diodes
• FETs • RF Transistors • Optoelectronics • ICs • Modules and Assemblies

PASSIVE COMPONENTS:

Resistive Products • Magnetics • Capacitors • Strain Gage Transducers and Stress Analysis Systems



**One of the World's Largest
Manufacturers**
of Discrete Semiconductors and Passive Components

WORLDWIDE SALES CONTACTS

THE AMERICAS

UNITED STATES

VISHAY AMERICAS
ONE GREENWICH PLACE
SHELTON, CT 06484
UNITED STATES
PH: +1-402-563-6866
FAX: +1-402-563-6296

ASIA

SINGAPORE

VISHAY INTERTECHNOLOGY
ASIA PTE LTD.
25 TAMPINES STREET 92
KEPPEL BUILDING #02-00
SINGAPORE 528877
PH: +65-6788-6668
FAX: +65-6788-0988

P.R. CHINA

VISHAY TRADING (SHANGHAI) CO., LTD.
15D, SUN TONG INFOPORT PLAZA
55 HUAI HAI WEST ROAD
SHANGHAI 200030
P.R. CHINA
PH: +86-21-5258 5000
FAX: +86-21-5258 7979

JAPAN

VISHAY JAPAN CO., LTD.
MG IKENOHATA BLDG. 4F
1-2-18, IKENOHATA
TAITO-KU
TOKYO 110-0008
JAPAN
PH: +81-3-5832-6210
FAX: +81-3-5832-6260

EUROPE

GERMANY

VISHAY EUROPE SALES GMBH
GEHEIMRAT-ROSENTHAL-STR. 100
95100 SELB
GERMANY
PH: +49-9287-71-0
FAX: +49-9287-70435

FRANCE

VISHAY S.A.
199, BLVD DE LA MADELEINE
06003 NICE, CEDEX 1
FRANCE
PH: +33-4-9337-2920
FAX: +33-4-9337-2997

UNITED KINGDOM

VISHAY LTD.
PALLION INDUSTRIAL ESTATE
SUNDERLAND SR4 6SU
UNITED KINGDOM
PH: +44-191-514-4155
FAX: +44-191-567-8262