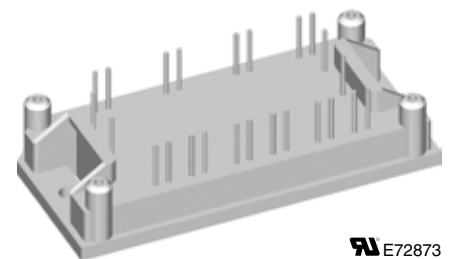
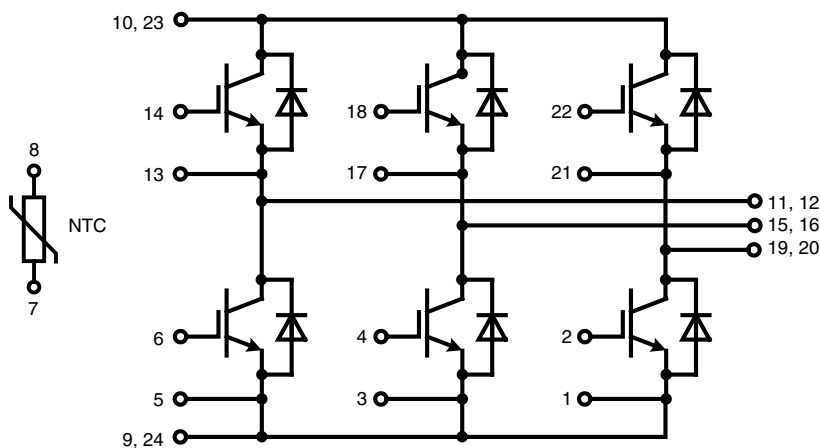


Six-Pack XPT IGBT

 $V_{CES} = 1200\text{ V}$
 $I_{C25} = 43\text{ A}$
 $V_{CE(sat)} = 1.8\text{ V}$

Part name (Marking on product)

MIXA30W1200TML



E72873

Pin configuration see outlines.

Features:

- High level of integration
- Rugged XPT design (Xtreme light Punch Through) results in:
 - short circuit rated for 10 μsec .
 - very low gate charge
 - square RBSOA @ 3x I_C
 - low EMI
- Thin wafer technology combined with the XPT design results in a competitive low $V_{CE(sat)}$
- Temperature sense included
- SONIC™ diode
 - fast and soft reverse recovery
 - low operating forward voltage

Application:

- AC motor drives
- Pumps, Fans
- Washing machines
- Air-conditioning system
- Inverter and power supplies

Package:

- E1 package
- Assembly height is 17.1 mm
- Insulated base plate
- Pins suitable for wave soldering and PCB mounting
- UL registered E72873

Ouput Inverter T1 - T6

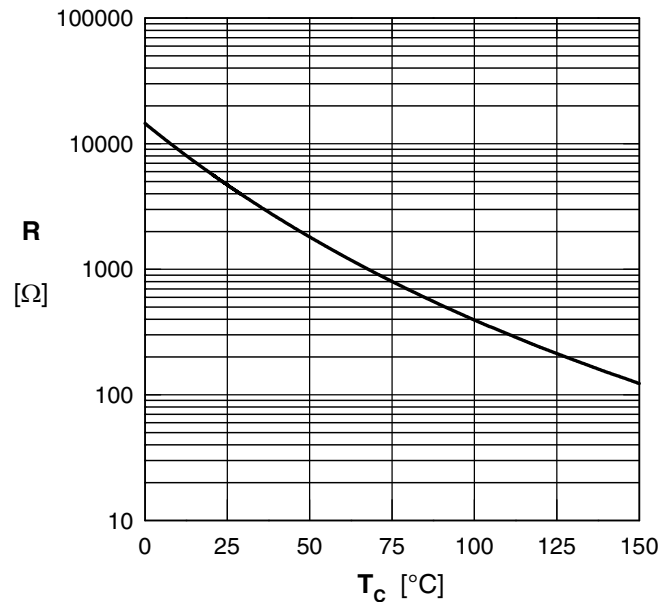
| Symbol | Definitions | Conditions | Ratings | | | Unit | |
|--|---------------------------------------|---|---|-------------|----------|------------|---|
| | | | min. | typ. | max. | | |
| V_{CES} | collector emitter voltage | | $T_{VJ} = 25^{\circ}\text{C}$ | | 1200 | V | |
| V_{GES} | max. DC gate voltage | continuous | | | ± 20 | V | |
| V_{GEM} | max. transient collector gate voltage | transient | | | ± 30 | V | |
| I_{C25} | collector current | | $T_C = 25^{\circ}\text{C}$ | | 43 | A | |
| I_{C80} | | | $T_C = 80^{\circ}\text{C}$ | | 30 | A | |
| P_{tot} | total power dissipation | | $T_C = 25^{\circ}\text{C}$ | | 150 | W | |
| $V_{CE(sat)}$ | collector emitter saturation voltage | $I_C = 25\text{ A}; V_{GE} = 15\text{ V}$ | $T_{VJ} = 25^{\circ}\text{C}$ $T_{VJ} = 125^{\circ}\text{C}$ | 1.8 2.1 | 2.1 | V V | |
| $V_{GE(th)}$ | gate emitter threshold voltage | $I_C = 1\text{ mA}; V_{GE} = V_{CE}$ | $T_{VJ} = 25^{\circ}\text{C}$ | 5.4 | 5.9 | 6.5 | V |
| I_{CES} | collector emitter leakage current | $V_{CE} = V_{CES}; V_{GE} = 0\text{ V}$ | $T_{VJ} = 25^{\circ}\text{C}$ $T_{VJ} = 125^{\circ}\text{C}$ | 0.02 0.3 | 0.15 | mA mA | |
| I_{GES} | gate emitter leakage current | $V_{GE} = \pm 20\text{ V}$ | | | 500 | nA | |
| $Q_{G(on)}$ | total gate charge | $V_{CE} = 600\text{ V}; V_{GE} = 15\text{ V}; I_C = 25\text{ A}$ | | | 76 | nC | |
| $t_{d(on)}$ | turn-on delay time | inductive load $V_{CE} = 600\text{ V}; I_C = 25\text{ A}$ $V_{GE} = \pm 15\text{ V}; R_G = 39\ \Omega$ | $T_{VJ} = 125^{\circ}\text{C}$ | 70 | | ns | |
| t_r | current rise time | | | 40 | | ns | |
| $t_{d(off)}$ | turn-off delay time | | | 250 | | ns | |
| t_f | current fall time | | | 100 | | ns | |
| E_{on} | turn-on energy per pulse | | | 2.5 | | mJ | |
| E_{off} | turn-off energy per pulse | | | 3.0 | | mJ | |
| RBSOA | reverse bias safe operating area | $V_{GE} = \pm 15\text{ V}; R_G = 39\ \Omega; V_{CEK} = 1200\text{ V}$ | $T_{VJ} = 125^{\circ}\text{C}$ | | 75 | A | |
| I_{SC} (SCSOA) | short circuit safe operating area | $V_{CE} = 900\text{ V}; V_{GE} = \pm 15\text{ V};$ $R_G = 39\ \Omega; t_p = 10\ \mu\text{s};$ non-repetitive | $T_{VJ} = 125^{\circ}\text{C}$ | 100 | | A | |
| R_{thJC} | thermal resistance junction to case | (per IGBT) | | 0.24 | 0.84 | K/W K/W | |
| R_{thCH} | thermal resistance case to heatsink | | | | | | |

Diode D1 - D6

| Symbol | Definitions | Conditions | Ratings | | | Unit |
|------------|-------------------------------------|---|---|--------------|------|---------------|
| | | | min. | typ. | max. | |
| V_{RRM} | max. repetitive reverse voltage | | $T_{VJ} = 25^{\circ}\text{C}$ | | 1200 | V |
| I_{F25} | forward current | | $T_C = 25^{\circ}\text{C}$ | | 44 | A |
| I_{F80} | | | $T_C = 80^{\circ}\text{C}$ | | 29 | A |
| V_F | forward voltage | $I_F = 30\text{ A}; V_{GE} = 0\text{ V}$ | $T_{VJ} = 25^{\circ}\text{C}$ $T_{VJ} = 125^{\circ}\text{C}$ | 1.95 1.95 | 2.2 | V V |
| Q_{rr} | reverse recovery charge | $V_R = 600\text{ V}$ $di_F/dt = -600\text{ A}/\mu\text{s}$ $I_F = 30\text{ A}; V_{GE} = 0\text{ V}$ | $T_{VJ} = 125^{\circ}\text{C}$ | 3.5 | | μC |
| I_{RM} | max. reverse recovery current | | | 30 | | A |
| t_{rr} | reverse recovery time | | | 350 | | ns |
| E_{rec} | reverse recovery energy | | | 0.9 | | mJ |
| R_{thJC} | thermal resistance junction to case | (per diode) | | 0.4 | 1.2 | K/W K/W |
| R_{thCH} | thermal resistance case to heatsink | | | | | |

Temperature Sensor NTC

| Symbol | Definitions | Conditions | Ratings | | | Unit |
|-------------|-------------|--------------------------|---------|------|------|------------|
| | | | min. | typ. | max. | |
| R_{25} | resistance | $T_C = 25^\circ\text{C}$ | 4.75 | 5.0 | 5.25 | k Ω |
| $B_{25/50}$ | | | | 3375 | | K |

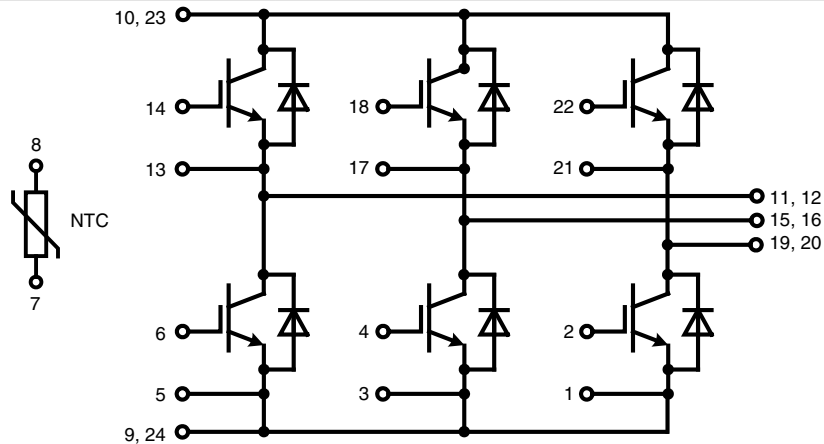


Typ. NTC resistance vs. temperature

Module

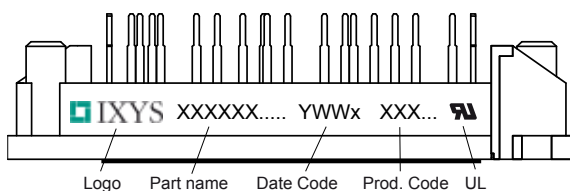
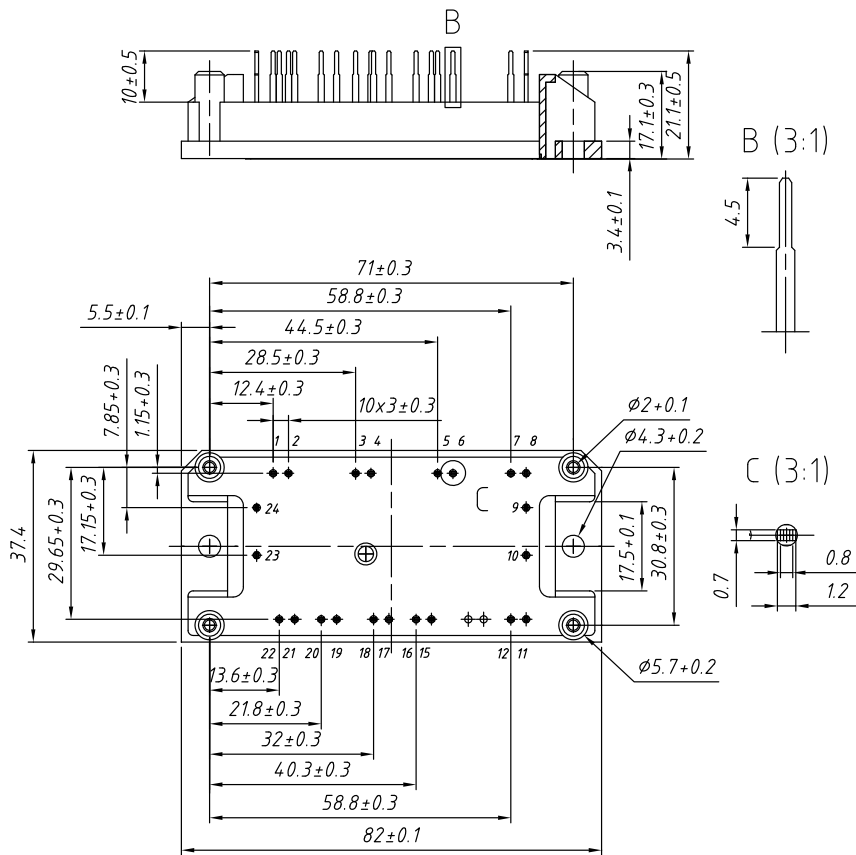
| Symbol | Definitions | Conditions | Ratings | | | Unit |
|------------|-----------------------------------|--|---------|------|------|------------------|
| | | | min. | typ. | max. | |
| T_{VJ} | operating temperature | | -40 | | 125 | $^\circ\text{C}$ |
| T_{VJM} | max. virtual junction temperature | | | | 150 | $^\circ\text{C}$ |
| T_{stg} | storage temperature | | -40 | | 125 | $^\circ\text{C}$ |
| V_{ISOL} | isolation voltage | $I_{ISOL} \leq 1 \text{ mA}; 50/60 \text{ Hz}$ | | | 2500 | V~ |
| CTI | comparative tracking index | | | | - | |
| F_C | mounting force | | 40 | | 80 | N |
| d_s | creep distance on surface | | 12.7 | | | mm |
| d_A | strike distance through air | | 12.7 | | | mm |
| Weight | | | | 40 | | g |

Circuit Diagram



Outline Drawing

Dimensions in mm (1 mm = 0.0394")



Part number

- M = Module
- I = IGBT
- X = XPT
- A = standard
- 30 = Current Rating [A]
- W = 6-Pack
- 1200 = Reverse Voltage [V]
- T = NTC
- ML = E1-Pack

| Ordering | Part Name | Marking on Product | Delivering Mode | Base Qty | Ordering Code |
|----------|--------------------|--------------------|-----------------|----------|---------------|
| Standard | MIXA 30 W 1200 TML | MIXA30W1200TML | Box | 10 | 510798 |

IGBT T1 - T6

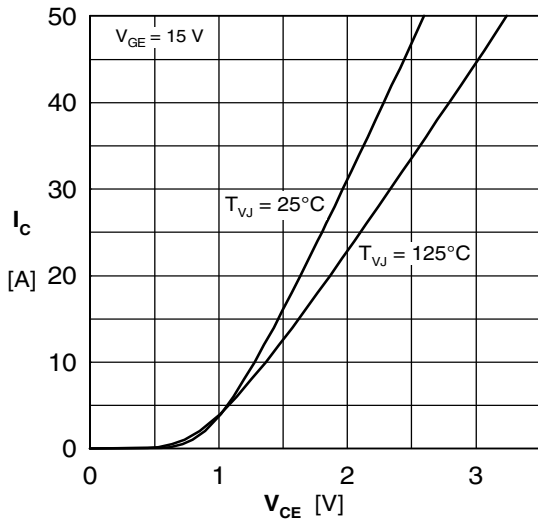


Fig. 1 Typ. output characteristics

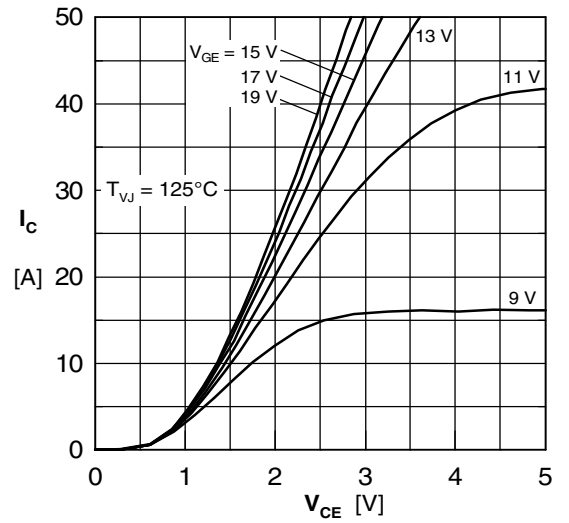


Fig. 2 Typ. output characteristics

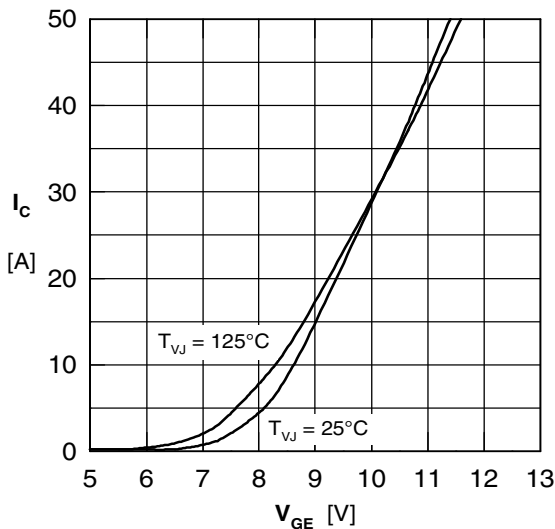


Fig. 3 Typ. transfer characteristics

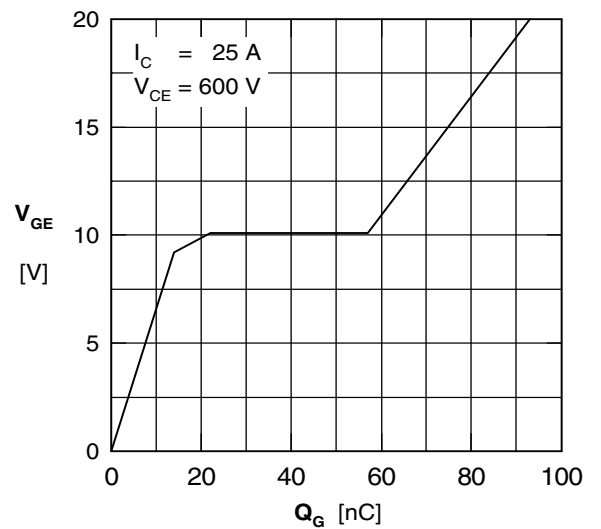


Fig. 4 Typ. turn-on gate charge

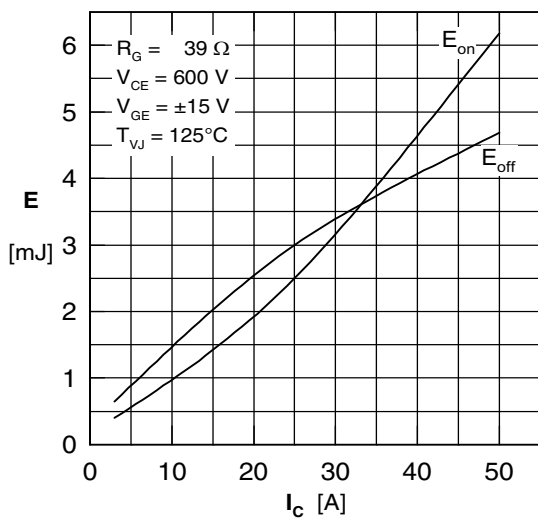


Fig. 5 Typ. switching energy vs. collector current

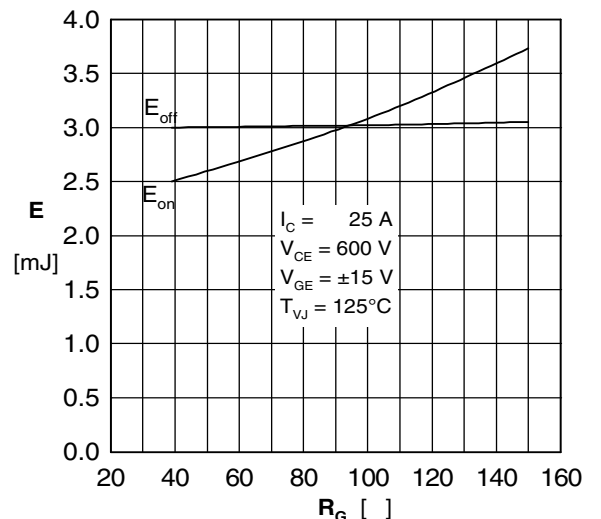


Fig. 6 Typ. switching energy vs. gate resistance

Diode D1 - D6

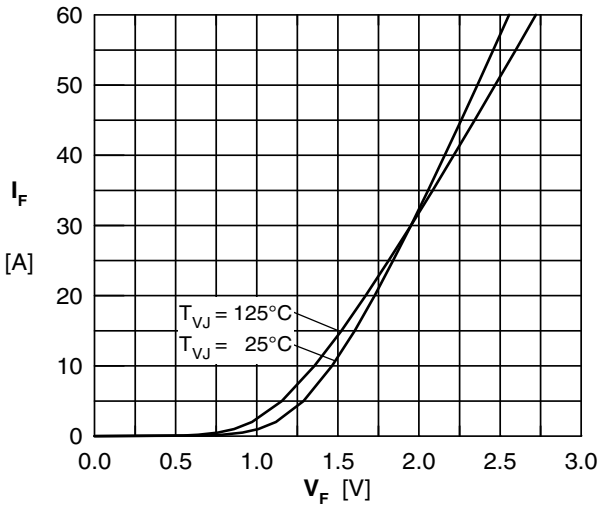


Fig. 7 Typ. Forward current versus V_F

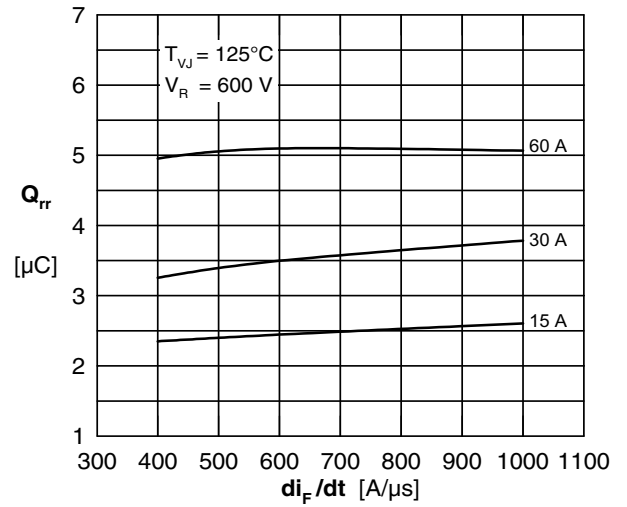


Fig. 8 Typ. reverse recov.charge Q_{rr} vs. di/dt

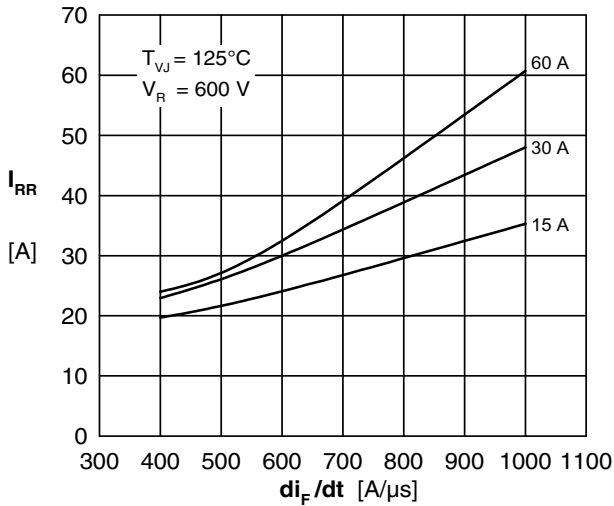


Fig. 9 Typ. peak reverse current I_{RRM} vs. di/dt

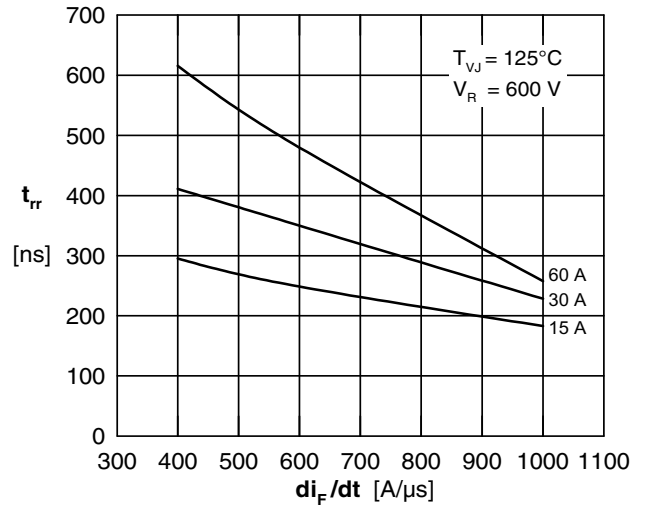


Fig. 10 Typ. recovery time t_{rr} versus di/dt

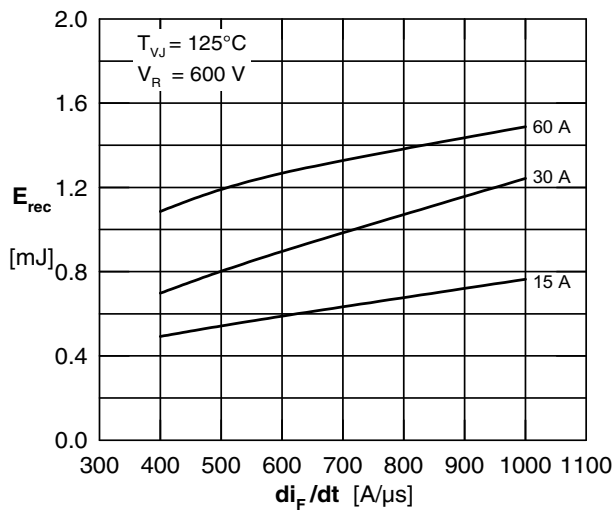


Fig. 11 Typ. recovery energy E_{rec} versus di/dt

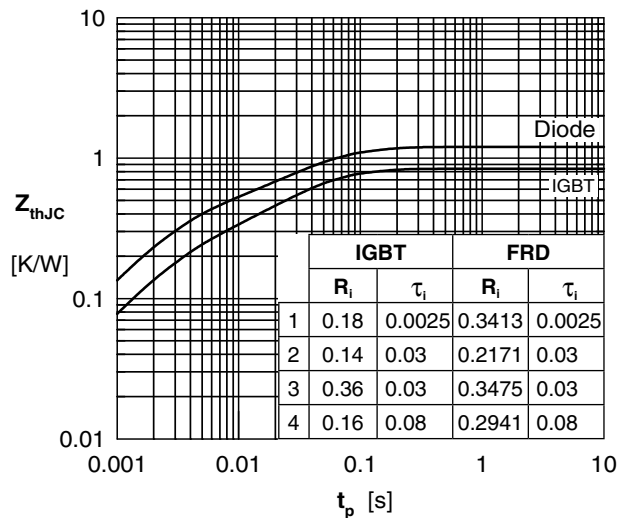


Fig. 12 Typ. transient thermal impedance



Компания «ЭлектроПласт» предлагает заключение долгосрочных отношений при поставках импортных электронных компонентов на взаимовыгодных условиях!

Наши преимущества:

- Оперативные поставки широкого спектра электронных компонентов отечественного и импортного производства напрямую от производителей и с крупнейших мировых складов;
- Поставка более 17-ти миллионов наименований электронных компонентов;
- Поставка сложных, дефицитных, либо снятых с производства позиций;
- Оперативные сроки поставки под заказ (от 5 рабочих дней);
- Экспресс доставка в любую точку России;
- Техническая поддержка проекта, помощь в подборе аналогов, поставка прототипов;
- Система менеджмента качества сертифицирована по Международному стандарту ISO 9001;
- Лицензия ФСБ на осуществление работ с использованием сведений, составляющих государственную тайну;
- Поставка специализированных компонентов (Xilinx, Altera, Analog Devices, Intersil, Interpoint, Microsemi, Aeroflex, Peregrine, Syfer, Eurofarad, Texas Instrument, Miteq, Cobham, E2V, MA-COM, Hittite, Mini-Circuits, General Dynamics и др.);

Помимо этого, одним из направлений компании «ЭлектроПласт» является направление «Источники питания». Мы предлагаем Вам помощь Конструкторского отдела:

- Подбор оптимального решения, техническое обоснование при выборе компонента;
- Подбор аналогов;
- Консультации по применению компонента;
- Поставка образцов и прототипов;
- Техническая поддержка проекта;
- Защита от снятия компонента с производства.



Как с нами связаться

Телефон: 8 (812) 309 58 32 (многоканальный)

Факс: 8 (812) 320-02-42

Электронная почта: org@eplast1.ru

Адрес: 198099, г. Санкт-Петербург, ул. Калинина, дом 2, корпус 4, литера А.