

FRED

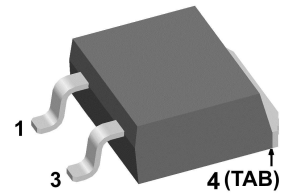
$$V_{RRM} = 1200 \text{ V}$$

$$I_{FAV} = 11 \text{ A}$$

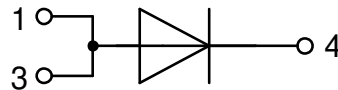
$$t_{rr} = 50 \text{ ns}$$

Single Diode

Part number

DSEI12-12AZ

Backside: cathode

**Features / Advantages:**

- Planar passivated chips
- Low leakage current
- Very short recovery time
- Improved thermal behaviour
- Very low I_{rm} -values
- Very soft recovery behaviour
- Avalanche voltage rated for reliable operation
- Soft reverse recovery for low EMI/RFI
- Low I_{rm} reduces:
 - Power dissipation within the diode
 - Turn-on loss in the commutating switch

Applications:

- Antiparallel diode for high frequency switching devices
- Antisaturation diode
- Snubber diode
- Free wheeling diode
- Rectifiers in switch mode power supplies (SMPS)
- Uninterruptible power supplies (UPS)

Package: TO-263 (D2Pak-HV)

- Industry standard outline
- RoHS compliant
- Epoxy meets UL 94V-0

Terms and Conditions of Usage

The data contained in this product data sheet is exclusively intended for technically trained staff. The user will have to evaluate the suitability of the product for the intended application and the completeness of the product data with respect to his application. The specifications of our components may not be considered as an assurance of component characteristics. The information in the valid application- and assembly notes must be considered. Should you require product information in excess of the data given in this product data sheet or which concerns the specific application of your product, please contact your local sales office.

Due to technical requirements our product may contain dangerous substances. For information on the types in question please contact your local sales office.

Should you intend to use the product in aviation, in health or life endangering or life support applications, please notify. For any such application we urgently recommend

- to perform joint risk and quality assessments;

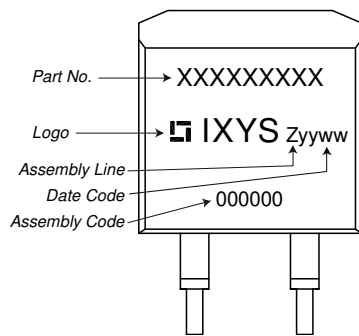
- the conclusion of quality agreements;

- to establish joint measures of an ongoing product survey, and that we may make delivery dependent on the realization of any such measures.

| Fast Diode | | | | Ratings | | | |
|------------|--|---|-------------------------|---------|------|------------|--|
| Symbol | Definition | Conditions | min. | typ. | max. | Unit | |
| V_{RSM} | max. non-repetitive reverse blocking voltage | $T_{VJ} = 25^{\circ}C$ | | | | V | |
| V_{RRM} | max. repetitive reverse blocking voltage | $T_{VJ} = 25^{\circ}C$ | | | 1200 | V | |
| I_R | reverse current, drain current | $V_R = 1200 V$ | $T_{VJ} = 25^{\circ}C$ | | 250 | μA | |
| | | $V_R = 960 V$ | $T_{VJ} = 125^{\circ}C$ | | 4 | mA | |
| V_F | forward voltage drop | $I_F = 12 A$ | $T_{VJ} = 25^{\circ}C$ | | 2.60 | V | |
| | | $I_F = 24 A$ | | | | V | |
| | | $I_F = 12 A$ | $T_{VJ} = 150^{\circ}C$ | | 2.20 | V | |
| | | $I_F = 24 A$ | | | | V | |
| I_{FAV} | average forward current | $T_C = 100^{\circ}C$ rectangular $d = 0.5$ | $T_{VJ} = 150^{\circ}C$ | | 11 | A | |
| V_{FO} | threshold voltage | } for power loss calculation only | $T_{VJ} = 150^{\circ}C$ | | 1.65 | V | |
| r_F | slope resistance | | | | 46.2 | m Ω | |
| R_{thJC} | thermal resistance junction to case | | | | 1.6 | K/W | |
| R_{thCH} | thermal resistance case to heatsink | | | 0.25 | | K/W | |
| P_{tot} | total power dissipation | | $T_C = 25^{\circ}C$ | | 78 | W | |
| I_{FSM} | max. forward surge current | $t = 10 ms; (50 Hz), sine; V_R = 0 V$ | $T_{VJ} = 45^{\circ}C$ | | 75 | A | |
| C_J | junction capacitance | $V_R = 600 V \quad f = 1 MHz$ | $T_{VJ} = 25^{\circ}C$ | | 6 | pF | |
| I_{RM} | max. reverse recovery current | } $I_F = 12 A; V_R = 540 V$ $-di_F / dt = 100 A/\mu s$ | $T_{VJ} = 25^{\circ}C$ | | tbd | A | |
| | | | $T_{VJ} = 100^{\circ}C$ | | 6 | A | |
| t_{rr} | reverse recovery time | | $T_{VJ} = 25^{\circ}C$ | | 50 | ns | |
| | | | $T_{VJ} = 100^{\circ}C$ | | tbd | ns | |

| Package TO-263 (D2Pak-HV) | | Ratings | | | | |
|---------------------------|--|----------------------|------|------|------|------|
| Symbol | Definition | Conditions | min. | typ. | max. | Unit |
| I_{RMS} | RMS current | per terminal | | | 35 | A |
| T_{VJ} | virtual junction temperature | | -40 | | 150 | °C |
| T_{op} | operation temperature | | -40 | | 125 | °C |
| T_{stg} | storage temperature | | -40 | | 150 | °C |
| Weight | | | | 1.5 | | g |
| F_C | mounting force with clip | | 20 | | 60 | N |
| $d_{Spp/App}$ | creepage distance on surface / striking distance through air | terminal to terminal | 4.2 | | | mm |
| $d_{Spb/Apb}$ | | terminal to backside | 4.7 | | | mm |

Product Marking

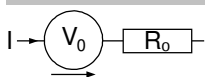


| Ordering | Ordering Number | Marking on Product | Delivery Mode | Quantity | Code No. |
|----------|-----------------|--------------------|---------------|----------|----------|
| Standard | DSEI12-12AZ | DSEI12-12AZ | Tape & Reel | 800 | 515338 |

Equivalent Circuits for Simulation

* on die level

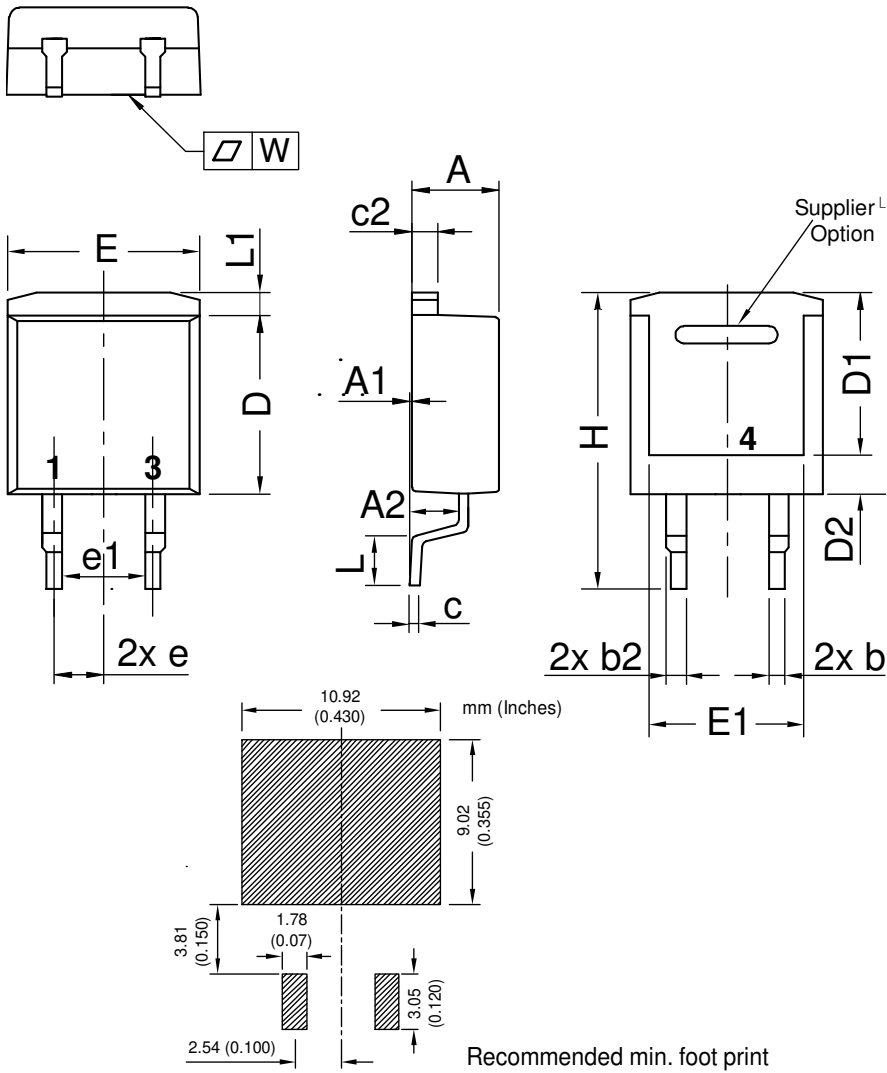
$T_{VJ} = 150\text{ °C}$



Fast Diode

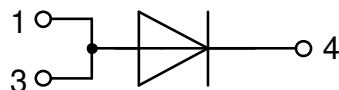
| | | | |
|--------------|--------------------|------|----|
| $V_{0\ max}$ | threshold voltage | 1.65 | V |
| $R_{0\ max}$ | slope resistance * | | mΩ |

Outlines TO-263 (D2Pak-HV)



| Dim. | Millimeter | | Inches | |
|------|------------|-------|-------------|-------|
| | min | max | min | max |
| A | 4.06 | 4.83 | 0.160 | 0.190 |
| A1 | typ. 0.10 | | typ. 0.004 | |
| A2 | 2.41 | | 0.095 | |
| b | 0.51 | 0.99 | 0.020 | 0.039 |
| b2 | 1.14 | 1.40 | 0.045 | 0.055 |
| c | 0.40 | 0.74 | 0.016 | 0.029 |
| c2 | 1.14 | 1.40 | 0.045 | 0.055 |
| D | 8.38 | 9.40 | 0.330 | 0.370 |
| D1 | 8.00 | 8.89 | 0.315 | 0.350 |
| D2 | 2.3 | | 0.091 | |
| E | 9.65 | 10.41 | 0.380 | 0.410 |
| E1 | 6.22 | 8.50 | 0.245 | 0.335 |
| e | 2,54 BSC | | 0,100 BSC | |
| e1 | 4.28 | | 0.169 | |
| H | 14.61 | 15.88 | 0.575 | 0.625 |
| L | 1.78 | 2.79 | 0.070 | 0.110 |
| L1 | 1.02 | 1.68 | 0.040 | 0.066 |
| W | typ. 0.02 | 0.040 | typ. 0.0008 | 0.002 |

All dimensions conform with and/or within JEDEC standard.



Fast Diode

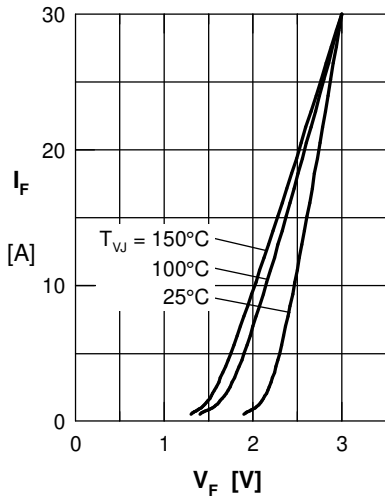


Fig. 1 Forward current I_F versus V_F

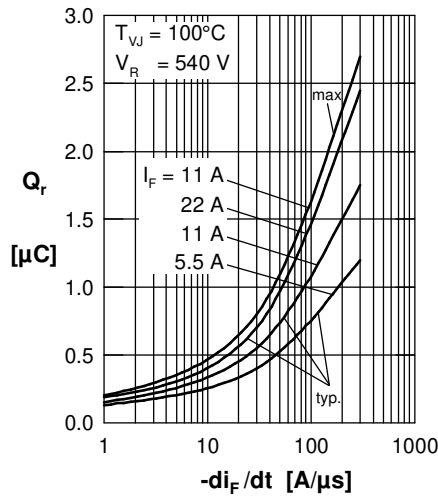


Fig. 2 Typ. reverse recov. charge Q_r versus $-di_F/dt$

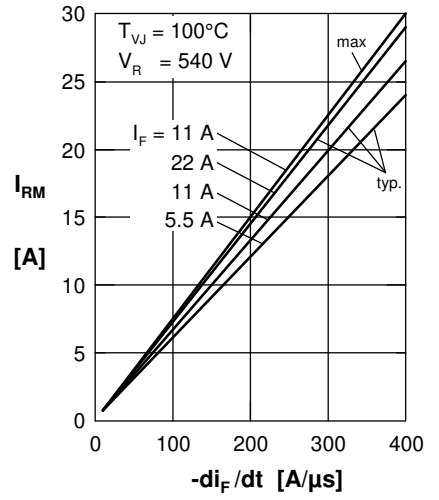


Fig. 3 Typ. peak reverse current I_{RM} versus $-di_F/dt$

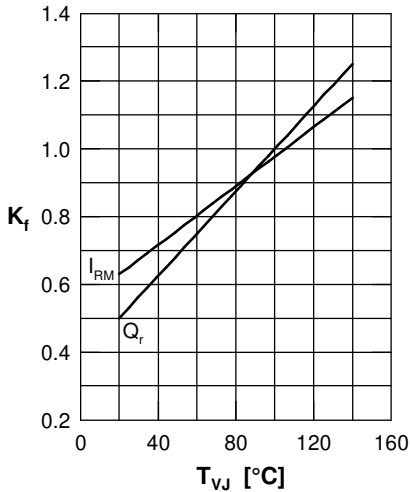


Fig. 4 Dynamic parameters Q_r , I_{RM} versus T_{VJ}

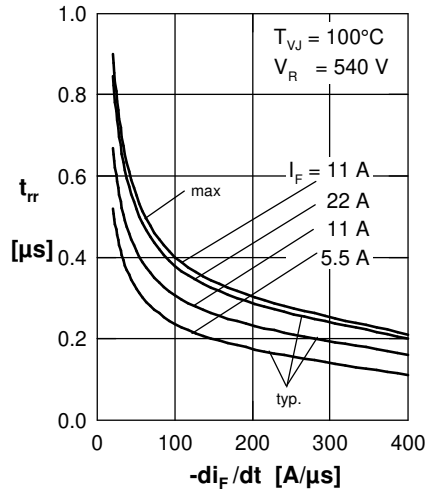


Fig. 5 Typ. recovery time t_{tr} versus $-di_F/dt$

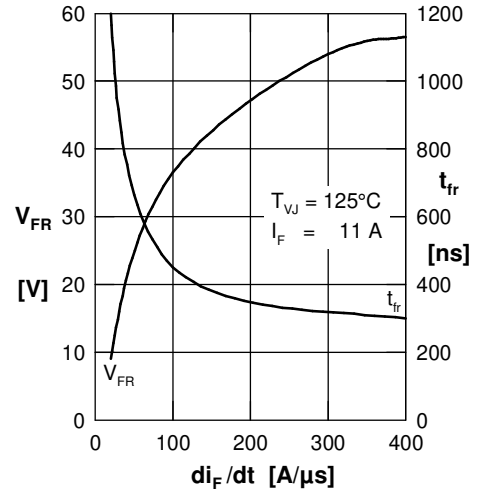


Fig. 6 Typ. peak forward voltage V_{FR} and t_{tr} versus di_F/dt

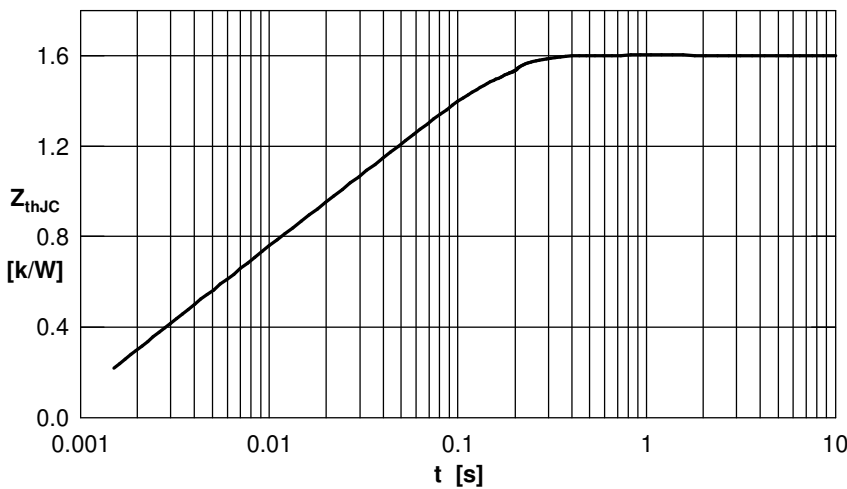


Fig. 7 Transient thermal impedance junction to case

Компания «Life Electronics» занимается поставками электронных компонентов импортного и отечественного производства от производителей и со складов крупных дистрибьюторов Европы, Америки и Азии.

С конца 2013 года компания активно расширяет линейку поставок компонентов по направлению коаксиальный кабель, кварцевые генераторы и конденсаторы (керамические, пленочные, электролитические), за счёт заключения дистрибьюторских договоров

Мы предлагаем:

- Конкурентоспособные цены и скидки постоянным клиентам.
- Специальные условия для постоянных клиентов.
- Подбор аналогов.
- Поставку компонентов в любых объемах, удовлетворяющих вашим потребностям.
- Приемлемые сроки поставки, возможна ускоренная поставка.
- Доставку товара в любую точку России и стран СНГ.
- Комплексную поставку.
- Работу по проектам и поставку образцов.
- Формирование склада под заказчика.
- Сертификаты соответствия на поставляемую продукцию (по желанию клиента).
- Тестирование поставляемой продукции.
- Поставку компонентов, требующих военную и космическую приемку.
- Входной контроль качества.
- Наличие сертификата ISO.

В составе нашей компании организован Конструкторский отдел, призванный помогать разработчикам, и инженерам.

Конструкторский отдел помогает осуществить:

- Регистрацию проекта у производителя компонентов.
- Техническую поддержку проекта.
- Защиту от снятия компонента с производства.
- Оценку стоимости проекта по компонентам.
- Изготовление тестовой платы монтаж и пусконаладочные работы.



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