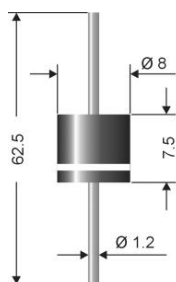


# HE 12FA ... HE 12FG



**Axial lead diode**

## High efficiency fast silicon rectifier diode

### HE 12FA...HE 12FG

**Forward Current: 12 A**

**Reverse Voltage: 50 to 400 V**

### Features

- Max. solder temperature: 260°C
- Plastic material has UL classification 94V-0

### Mechanical Data

- Plastic case 8 x 7,5 [mm]
- Weight approx.: 1,5 g
- Terminals: plated terminals solderable per MIL-STD-750
- Mounting position: any
- Standard packaging: 500 pieces per ammo or 1000 pieces per reel

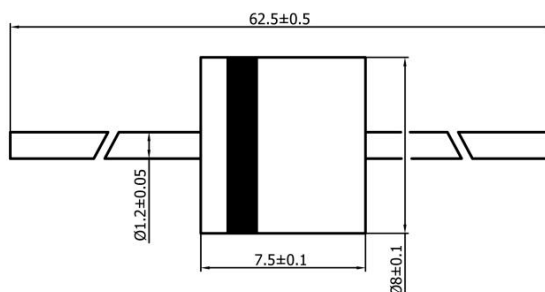
- 1) Valid, if leads are kept at ambient temperature at a distance of 10 mm from case
- 2)  $I_F = 5 \text{ A}$ ,  $T_J = 25 \text{ °C}$
- 3)  $T_A = 25 \text{ °C}$
- 4) Thermal resistance from junction to lead/terminal at a distance 0 mm from case
- 5) Max. junction temperature  $T_J \leq 200 \text{ °C}$  in bypass mode / DC forward mode

| Type    | Repetitive peak reverse voltage<br>$V_{RRM}$<br>V | Surge peak reverse voltage<br>$V_{RSM}$<br>V | Max. reverse recovery time<br>$I_F = 0,5 \text{ A}$<br>$I_R = 1 \text{ A}$<br>$I_{RR} = 0,25 \text{ A}$<br>$t_{rr}$<br>ns | Max. forward voltage<br>$V_F^{(2)}$ |
|---------|---------------------------------------------------|----------------------------------------------|---------------------------------------------------------------------------------------------------------------------------|-------------------------------------|
| HE 12FA | 50                                                | 50                                           | 200                                                                                                                       | 0,82                                |
| HE 12FB | 100                                               | 100                                          | 200                                                                                                                       | 0,82                                |
| HE 12FD | 200                                               | 200                                          | 200                                                                                                                       | 0,82                                |
| HE 12FG | 400                                               | 400                                          | 200                                                                                                                       | 0,84                                |

| Absolute Maximum Ratings |                                                                 | $T_A = 25 \text{ °C}$ , unless otherwise specified               |                  |
|--------------------------|-----------------------------------------------------------------|------------------------------------------------------------------|------------------|
| Symbol                   | Conditions                                                      | Values                                                           | Units            |
| $I_{FAV}$                | Max. averaged fwd. current, R-load, $T_A = 50 \text{ °C}^{(1)}$ | 12                                                               | A                |
| $I_{FRM}$                | Repetitive peak forward current $f > 15 \text{ Hz}^{(1)}$       | 80                                                               | A                |
| $I_{FSM}$                | Peak forward surge current 50 Hz half sinus-wave $^{(3)}$       | 650                                                              | A                |
| $i^2t$                   | Rating for fusing, $t < 10 \text{ ms}^{(3)}$                    | 2100                                                             | A <sup>2</sup> s |
| $R_{thA}$                | Max. thermal resistance junction to ambient $^{(1)}$            |                                                                  | K/W              |
| $R_{thL}$                | Max. thermal resistance junction to terminals $^{(4)}$          | 2,5                                                              | K/W              |
| $T_J$                    | Operating junction temperature                                  | -50...+175 ( $T_J \leq 200 \text{ °C}$ in bypass mode $^{(5)}$ ) | °C               |
| $T_s$                    | Storage temperature                                             | -50...+175                                                       | °C               |

| Characteristics |                                                                                                                     | $T_A = 25 \text{ °C}$ , unless otherwise specified |       |
|-----------------|---------------------------------------------------------------------------------------------------------------------|----------------------------------------------------|-------|
| Symbol          | Conditions                                                                                                          | Values                                             | Units |
| $I_R$           | Maximum leakage current, $T_J = 25 \text{ °C}$ ; $V_R = V_{RRM}$                                                    | <25                                                | µA    |
|                 | $T_J = \text{°C}$ ; $V_R = V_{RRM}$                                                                                 |                                                    |       |
| $C_J$           | Typical junction capacitance (at MHz and applied reverse voltage of V)                                              | -                                                  | pF    |
| $Q_{rr}$        | Reverse recovery charge ( $U_R = V$ ; $I_F = A$ ; $dI_F/dt = A/ms$ )                                                | -                                                  | µC    |
| $E_{RSM}$       | Non repetitive peak reverse avalanche energy ( $I_R = \text{mA}$ ; $T_J = \text{°C}$ ; inductive load switched off) | -                                                  | mJ    |

Dimensions in mm



case: 8 x 7,5 [mm]

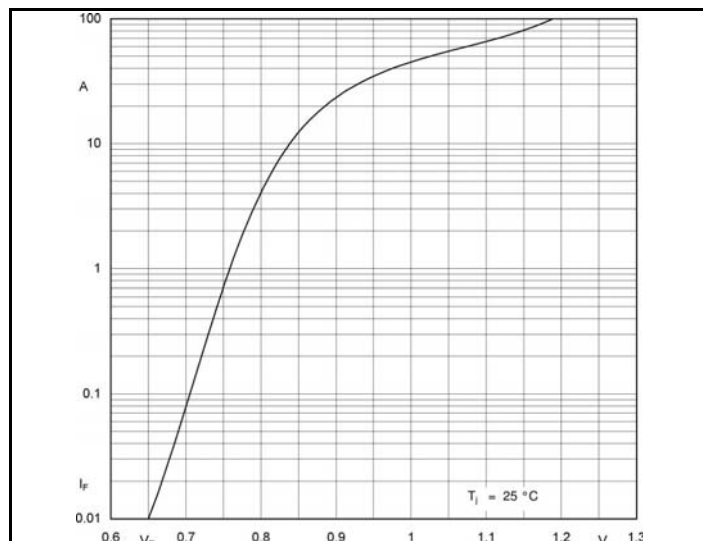


Fig. 1 Forward characteristic ( typical values ) <sup>1)</sup>

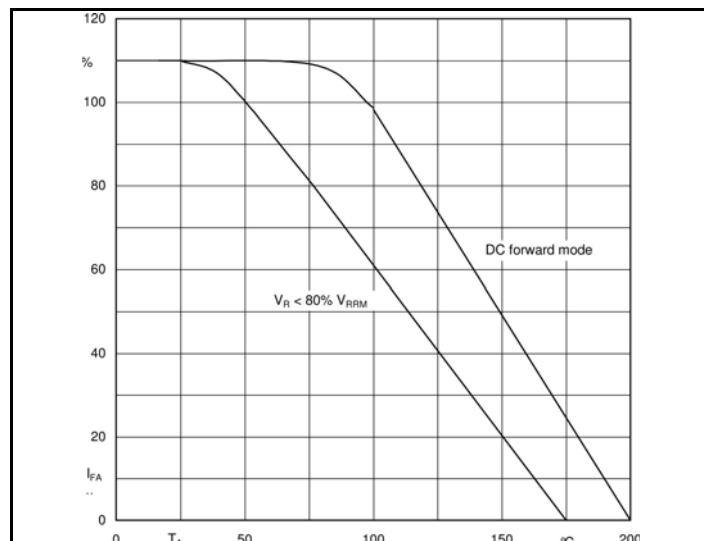


Fig. 2 Rated forward current vs. ambient temperature <sup>1)</sup>

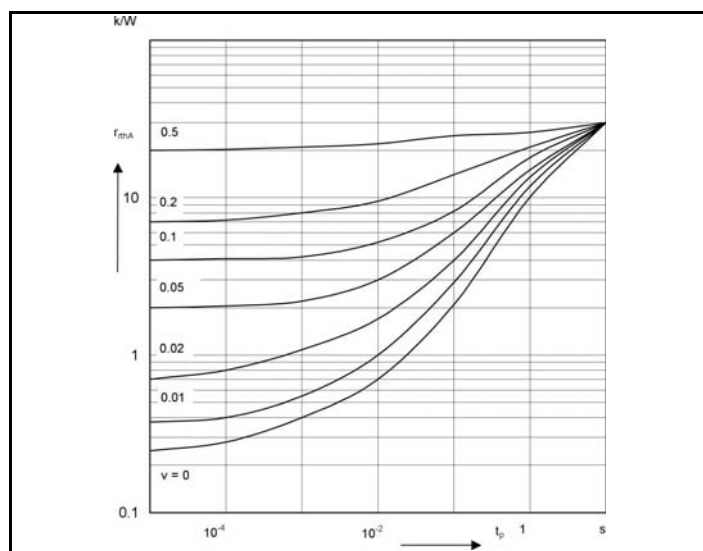


Fig. 3 Pulse thermal resistance vs. pulse duration <sup>1)</sup>

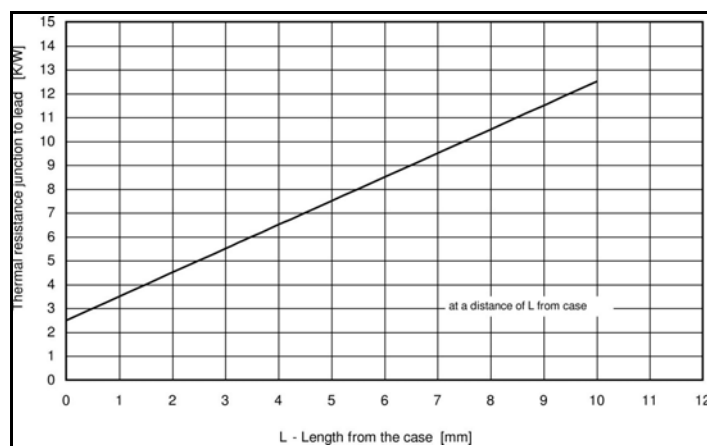


Fig. 4, Thermal resistance versus distance from case