



## General Description

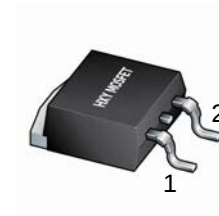
This product family offers state of the art performance. It is designed for high frequency applications where high efficiency and high reliability are required.

## Features

- Low conduction loss due to low  $V_F$
- Extremely low switching loss by tiny  $Q_c$
- Highly rugged due to better surge current
- Industrial standard quality and reliability

## Applications

- UPS
- Power Inverter
- High performance SMPS
- Power factor correction



TO-263  
(D2PAK-HV)

Package



| Ordering Part Number | Package          | Qty(PCS) |
|----------------------|------------------|----------|
| FFSB10120A-F085      | TO-263(D2PAK-HV) | 800      |





**Maximum Ratings** (at  $T_j = 25^\circ\text{C}$ , unless otherwise specified)

| Parameter                                                                                                                                                                        | Symbol        | Value          | Unit                 |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|----------------|----------------------|
| Repetitive Peak Reverse Voltage                                                                                                                                                  | $V_{RRM}$     | 1200           | V                    |
| Surge Peak Reverse Voltage                                                                                                                                                       | $V_{RSM}$     | 1200           | V                    |
| DC Peak Reverse Voltage                                                                                                                                                          | $V_R$         | 1200           | V                    |
| Continuous Forward Current<br>$T_C = 25^\circ\text{C}$<br>$T_C = 135^\circ\text{C}$<br>$T_C = 160^\circ\text{C}$                                                                 | $I_F$         | 30<br>15<br>10 | A                    |
| Repetitive Peak Forward Surge Current<br>$T_C = 25^\circ\text{C}, t_p=10\text{ms}, \text{Half Sine Pulse}$<br>$T_C = 110^\circ\text{C}, t_p=10\text{ms}, \text{Half Sine Pulse}$ | $I_{FRM}$     | 57<br>41.5     | A                    |
| Non-Repetitive Forward Surge Current<br>$T_C = 25^\circ\text{C}, t_p=10\text{ms}, \text{Half Sine Pulse}$<br>$T_C = 110^\circ\text{C}, t_p=10\text{ms}, \text{Half Sine Pulse}$  | $I_{FSM}$     | 90<br>69.5     | A                    |
| $i^2dt$ value<br>$T_C = 25^\circ\text{C}, t_p=10\text{ms}, \text{Half Sine Pulse}$<br>$T_C = 110^\circ\text{C}, t_p=10\text{ms}, \text{Half Sine Pulse}$                         | $\int i^2 dt$ | 40.5<br>24     | $\text{A}^2\text{s}$ |
| Power dissipation<br>$T_C = 25^\circ\text{C}$<br>$T_C = 110^\circ\text{C}$                                                                                                       | $P_{tot}$     | 115<br>50      | W                    |
| Operating junction Range                                                                                                                                                         | $T_j$         | -55 to +175    | $^\circ\text{C}$     |
| Storage temperature Range                                                                                                                                                        | $T_{stg}$     | -55 to +150    | $^\circ\text{C}$     |

**Thermal Resistance**

| Parameter                            | Symbol     | Value | Unit               |
|--------------------------------------|------------|-------|--------------------|
| Thermal resistance, junction – case. | $R_{thJC}$ | 1.30  | $^\circ\text{C/W}$ |



**Electrical Characteristic** (at  $T_j = 25^\circ\text{C}$ , unless otherwise specified)

| Parameter               | Symbol | Value |      |      | Unit          | Test Condition                                                                                        |
|-------------------------|--------|-------|------|------|---------------|-------------------------------------------------------------------------------------------------------|
|                         |        | min.  | typ. | max. |               |                                                                                                       |
| Forward Voltage         | $V_F$  | -     | 1.4  | 1.7  | V             | $I_F=10\text{A}$<br>$T_j=25^\circ\text{C}$<br>$T_j=175^\circ\text{C}$                                 |
| Reverse Current         | $I_R$  | -     | -    | 100  | $\mu\text{A}$ | $V_R=1200\text{V}$<br>$T_j=25^\circ\text{C}$<br>$T_j=175^\circ\text{C}$                               |
| Total Capacitive Charge | $Q_C$  | -     | 48   | -    | nC            | $V_R=800\text{V}$ , $T_j=25^\circ\text{C}$<br>$Q_C = \int_0^{V_R} C(V) dV$                            |
| Total Capacitance       | $C$    | -     | 695  | -    | pF            | $T_j=25^\circ\text{C}$ , $f=1\text{MHz}$<br>$V_R=0\text{V}$<br>$V_R=400\text{V}$<br>$V_R=800\text{V}$ |

**Characteristics Curve:**

Fig 1: Forward Characteristics

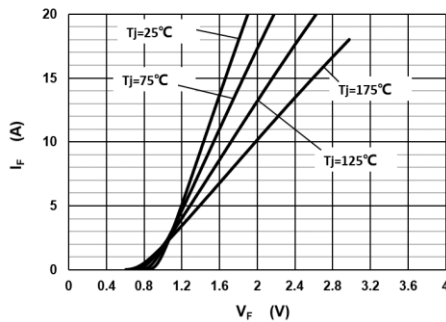


Fig 2: Reverse Characteristics

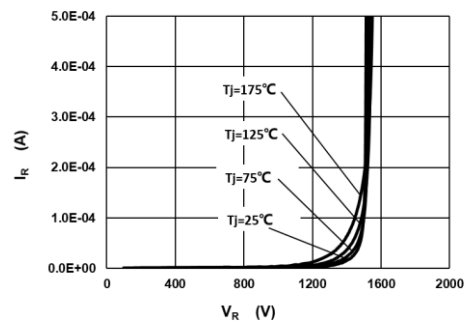


Fig 3: Current Derating

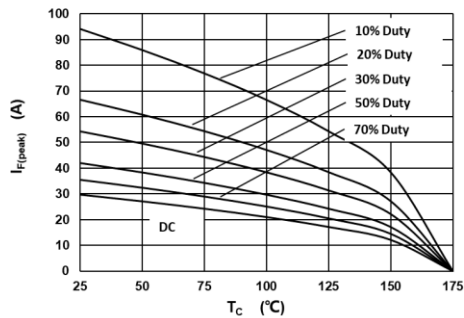


Fig 4: Power Derating

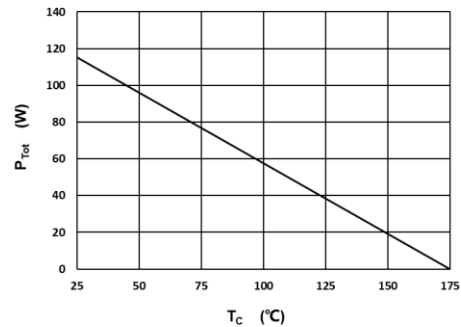




Fig 5: Capacitance vs. Reverse Voltage

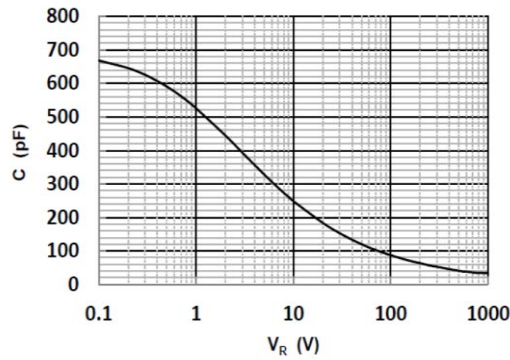


Fig 6: Reverse Charge vs. Reverse Voltage

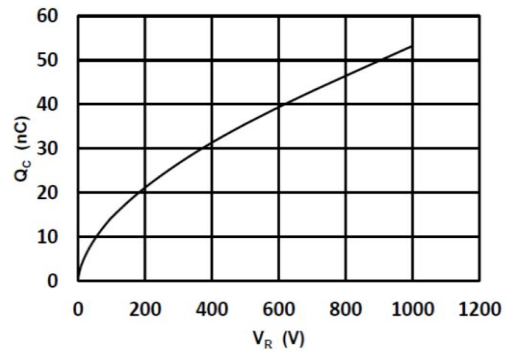


Fig 7: Typical Capacitance Stored Energy

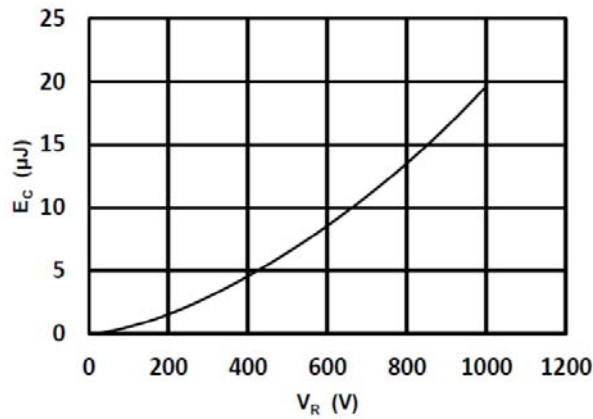
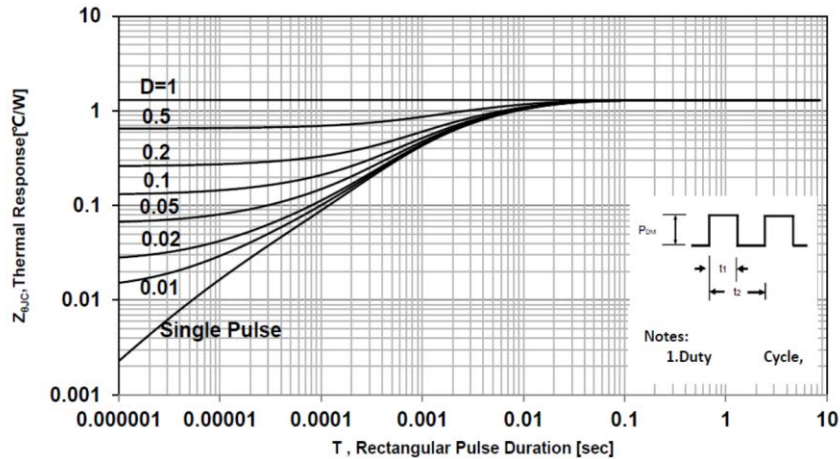


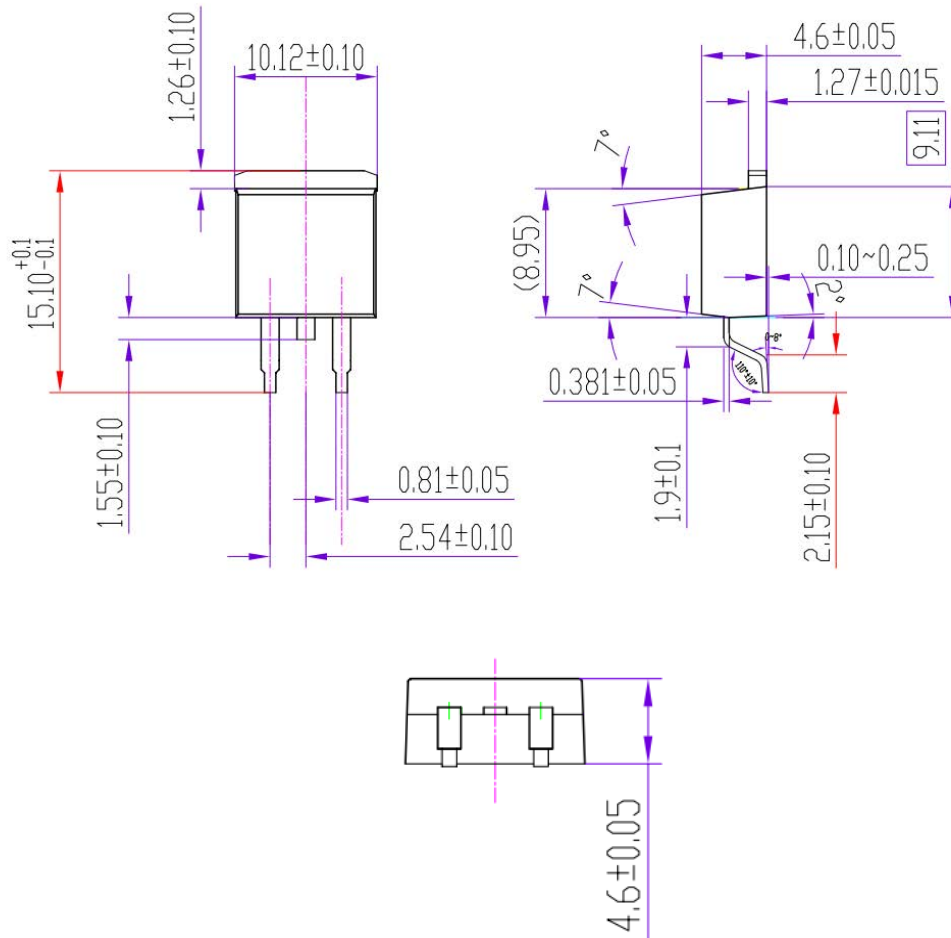
Fig 8: Transient Thermal Impandance





## Package Dimensions

Package TO-263(D2PAK-HV)





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