

40V, 5A POWER SCHOTTKY RECTIFIER

Features

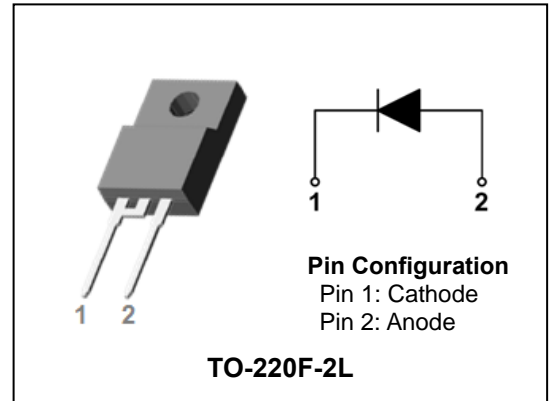
- Low forward voltage drop
- Low power loss and High efficiency
- Low leakage current
- High surge capability
- Full lead (Pb)-free and RoHS compliant device

Applications

- High efficiency SMPS
- Output rectification
- High frequency switching
- Freewheeling
- DC-DC converter systems

Description

The SDB540PH is suited for Switch Mode Power Supply and high frequency DC to DC converters. This device is especially intended for use in low voltage, high frequency inverters, free wheeling and polarity protection applications.



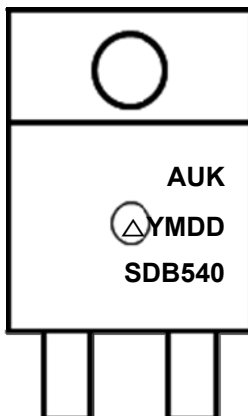
Product Characteristics

| | |
|-------------------|--------------|
| $I_{F(AV)}$ | 5A |
| V_{RRM} | 40V |
| V_{FM} at 125°C | 0.50V |
| I_{FSM} | 120A |

Ordering Information

| Device | Marking Code | Package | Packaging |
|----------|--------------|------------|-----------|
| SDB540PH | SDB540 | TO-220F-2L | Tube |

Marking Information



AUK = Manufacture Logo

Δ = Control Code of Manufacture

YMDD = Date Code Marking

- Y = Year Code

- M = Monthly Code

- DD = Daily Code

SDB540 = Specific Device Code

Absolute Maximum Ratings (Limiting Values)

| Characteristic | Symbol | Value | Unit |
|---|---------------------------------|-----------------|------|
| Maximum repetitive reverse voltage Maximum working peak reverse voltage Maximum DC blocking voltage | V_{RRM} V_{RWM} V_R | 40 | V |
| Maximum average forward rectified current | $I_{F(AV)}$ | 5 | A |
| Peak forward surge current 8.3ms single half sine-wave superimposed on rated load per diode | I_{FSM} | 120 | A |
| Storage temperature range | T_{stg} | -55°C to +150°C | °C |
| Maximum operating junction temperature | T_J | 150 | °C |

Thermal Characteristics

| Characteristic | Symbol | Value | Unit |
|---|---------------|-------|------|
| Maximum thermal resistance junction to case | $R_{th(j-c)}$ | 5.0 | °C/W |

Electrical Characteristics

| Characteristic | Symbol | Test Condition | Min. | Typ. | Max. | Unit | |
|---------------------------|----------------|-----------------|---------------------|------|------|------|----|
| Peak forward voltage drop | $V_{FM}^{(1)}$ | $I_{FM} = 5A$ | $T_j = 25^\circ C$ | - | - | 0.55 | V |
| | | | $T_j = 125^\circ C$ | | 0.46 | 0.50 | V |
| Reverse leakage current | $I_{RM}^{(1)}$ | $V_R = V_{RRM}$ | $T_j = 25^\circ C$ | - | - | 0.5 | mA |
| | | | $T_j = 125^\circ C$ | - | - | 100 | mA |

Note: (1) Pulse test: $t_p \leq 380 \mu s$, Duty cycle $\leq 2\%$

Electrical Characteristic Curves

Fig. 1 $I_O - V_F$

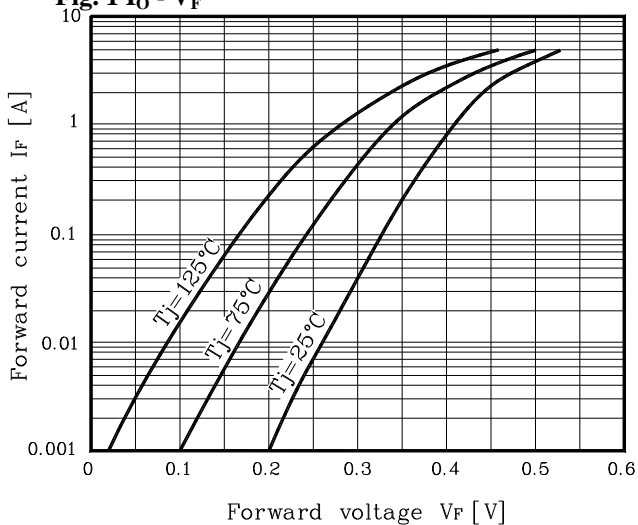


Fig. 2 $I_R - V_R$

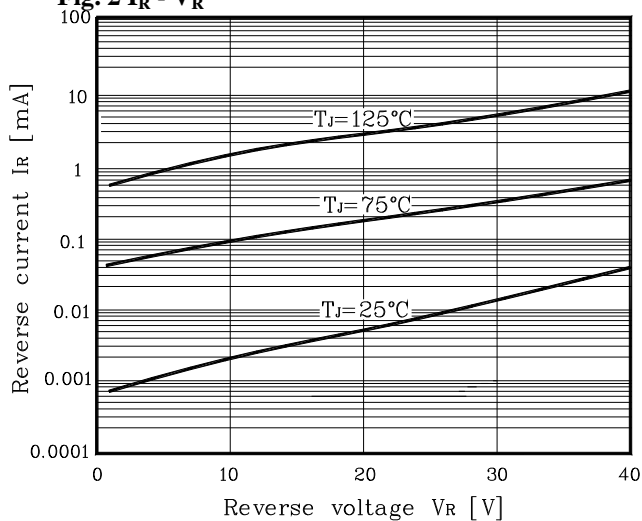


Fig. 3 $P_F - I_O$

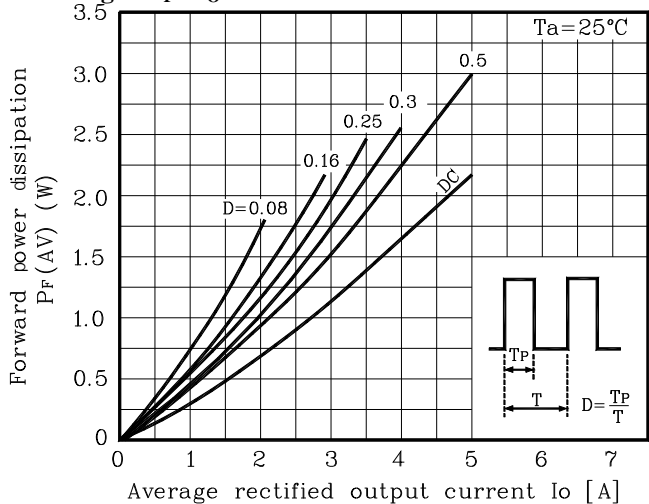


Fig. 4 $C_j - V_R$

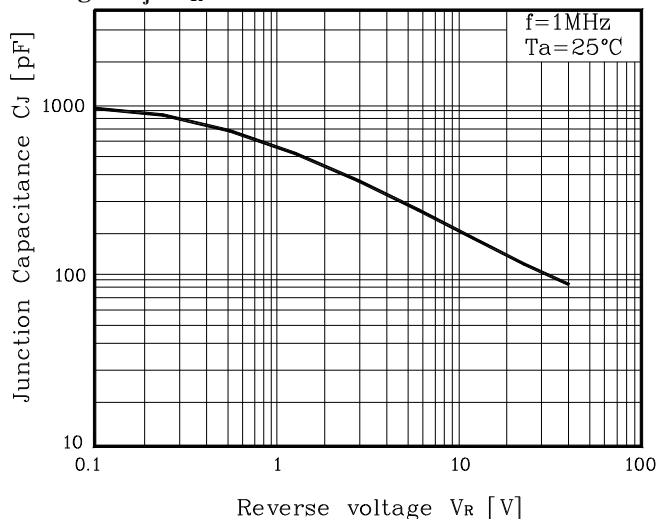


Fig. 5 $I_{FSM} - \text{Number of cycle}$

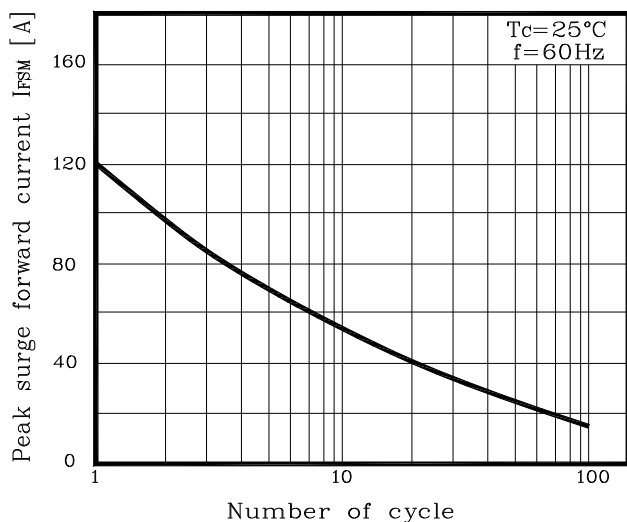
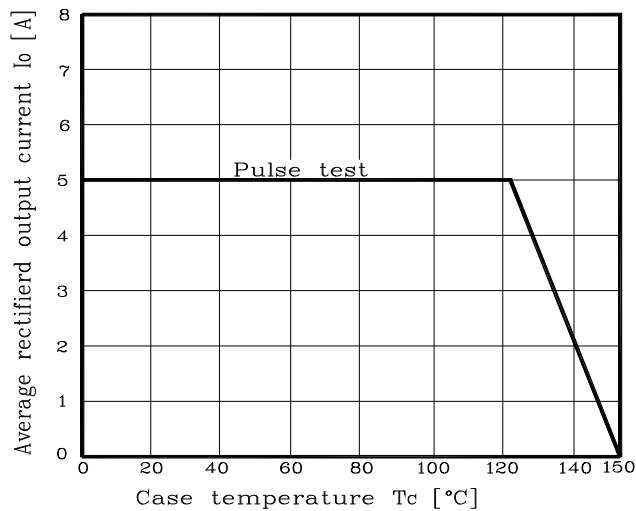
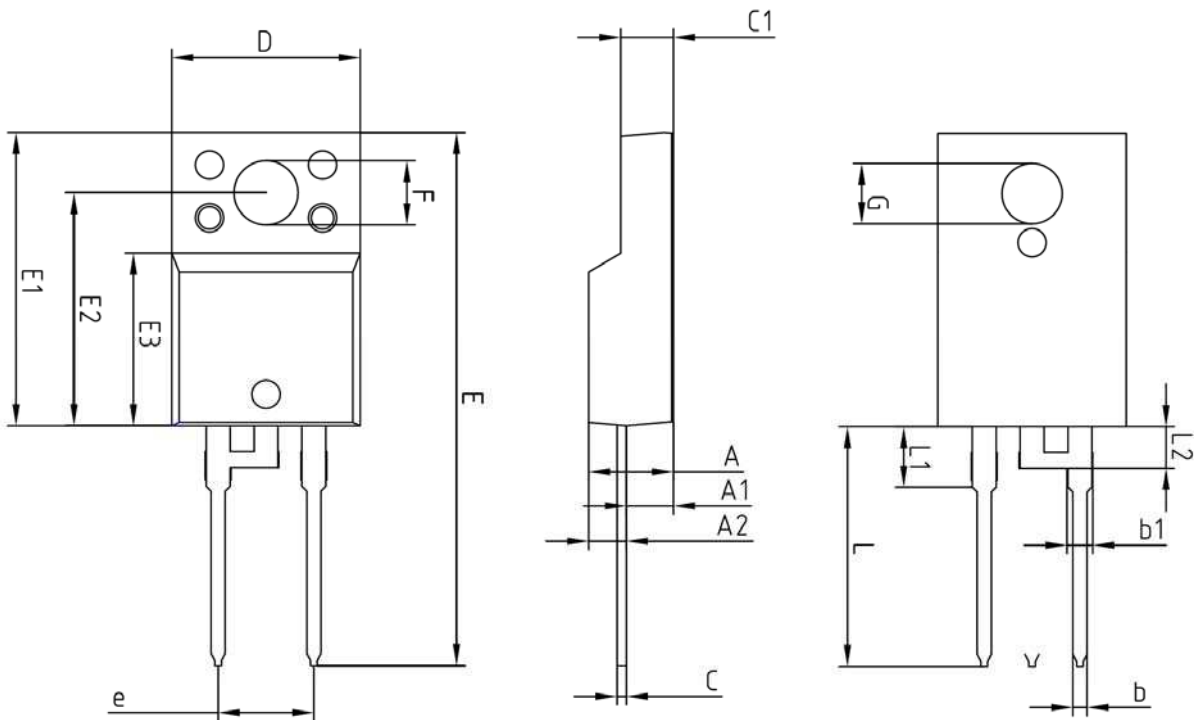


Fig. 6 I_O derating - T_c



Package Outline Dimension



| SYMBOL | MILLIMETERS | | | NOTE |
|--------|-------------|---------|---------|------|
| | MINIMUM | NOMINAL | MAXIMUM | |
| A | — | — | 4.60 | |
| A1 | 2.45 | 2.50 | 2.55 | |
| A2 | 1.95 | 2.00 | 2.05 | |
| b | 0.65 | 0.75 | 0.85 | |
| b1 | 1.07 | 1.27 | 1.47 | |
| C | 0.40 | 0.50 | 0.60 | |
| C1 | 2.70 | 2.80 | 2.90 | |
| D | 9.90 | 10.00 | 10.10 | |
| E | 28.00 | — | 28.60 | |
| E1 | 15.50 | 15.60 | 15.70 | |
| E2 | 12.30 | 12.40 | 12.50 | |
| E3 | 9.15 | 9.20 | 9.25 | |
| F | 3.30 | 3.40 | 3.50 | |
| G | 3.10 | 3.20 | 3.30 | |
| e | 5.08 BSC | | | |
| L | 12.40 | — | 13.00 | |
| L1 | 3.46 BSC | | | |
| L2 | 2.21 BSC | | | |

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