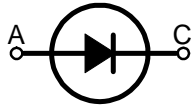
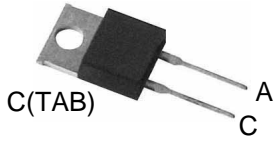


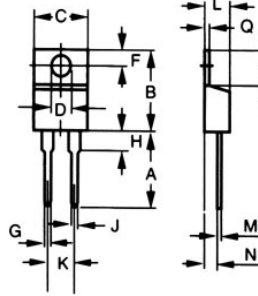
SD30

Discrete Diodes



A=Anode, C=Cathode, TAB=Cathode

Dimensions TO-220AC



| Dim. | Inches | | Millimeter | |
|------|--------|-------|------------|-------|
| | Min. | Max. | Min. | Max. |
| A | 0.500 | 0.580 | 12.70 | 14.73 |
| B | 0.560 | 0.650 | 14.23 | 16.51 |
| C | 0.380 | 0.420 | 9.66 | 10.66 |
| D | 0.139 | 0.161 | 3.54 | 4.08 |
| E | 0.230 | 0.420 | 5.85 | 6.85 |
| F | 0.100 | 0.135 | 2.54 | 3.42 |
| G | 0.045 | 0.070 | 1.15 | 1.77 |
| H | - | 0.250 | - | 6.35 |
| J | 0.025 | 0.035 | 0.64 | 0.89 |
| K | 0.190 | 0.210 | 4.83 | 5.33 |
| L | 0.140 | 0.190 | 3.56 | 4.82 |
| M | 0.015 | 0.022 | 0.38 | 0.56 |
| N | 0.080 | 0.115 | 2.04 | 2.49 |
| Q | 0.025 | 0.055 | 0.64 | 1.39 |

| | V_{RSM} | V_{RRM} |
|--------|-----------|-----------|
| | V | V |
| SD3001 | 50 | 50 |
| SD3002 | 100 | 100 |
| SD3003 | 200 | 200 |
| SD3004 | 400 | 400 |
| SD3005 | 600 | 600 |
| SD3006 | 800 | 800 |
| SD3007 | 1000 | 1000 |

| Symbol | Test Conditions | Maximum Ratings | Unit |
|------------------------------------|--------------------------------------------------------------------------------------------------------------------|---------------------------------|------------------|
| $I_{F(AV)M}$ | $T_C=95^\circ\text{C}$; 180° sine | 30 | A |
| I_{FSM} | $T_{VJ}=45^\circ\text{C}$; $V_R=0\text{V}$; $t=10\text{ms}$ (50Hz), sine $t=8.3\text{ms}$ (60Hz), sine | 300 330 | A |
| | $T_{VJ}=150^\circ\text{C}$; $V_R=0\text{V}$; $t=10\text{ms}$ (50Hz), sine $t=8.3\text{ms}$ (60Hz), sine | 270 300 | |
| I^2t | $T_{VJ}=45^\circ\text{C}$; $V_R=0\text{V}$; $t=10\text{ms}$ (50Hz), sine $t=8.3\text{ms}$ (60Hz), sine | 450 460 | A ² s |
| | $T_{VJ}=150^\circ\text{C}$; $V_R=0\text{V}$; $t=10\text{ms}$ (50Hz), sine $t=8.3\text{ms}$ (60Hz), sine | 365 385 | |
| T_{VJ} T_{VJM} T_{stg} | | -40...+150 150 -40...+150 | °C |
| M_d | Mounting torque | 0.4...0.6 | Nm |
| Weight | | 2 | g |

| Symbol | Test Conditions | Characteristic Values | Unit |
|------------|----------------------------------------------|-----------------------|------|
| I_R | $T_{VJ}=T_{VJM}$; $V_R=V_{RRM}$ | ≤ 1 | mA |
| V_F | $I_F=45\text{A}$; $T_{VJ}=25^\circ\text{C}$ | ≤ 1.45 | V |
| V_{To} | For power-loss calculations only | 0.85 | V |
| r_T | $T_{VJ}=T_{VJM}$ | 13 | mΩ |
| R_{thJC} | DC current | 1.0 | K/W |

SD30

Discrete Diodes

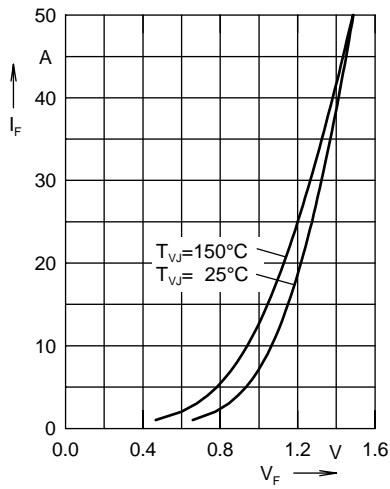


Fig. 1 Forward current versus voltage drop per diode

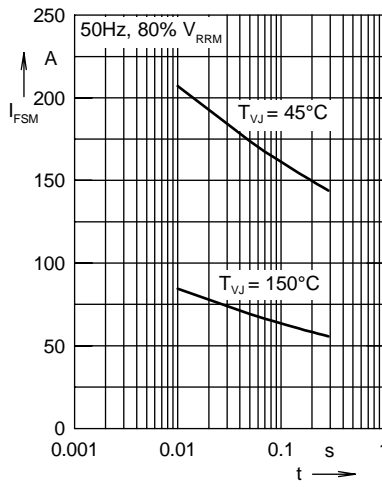


Fig. 2 Surge overload current

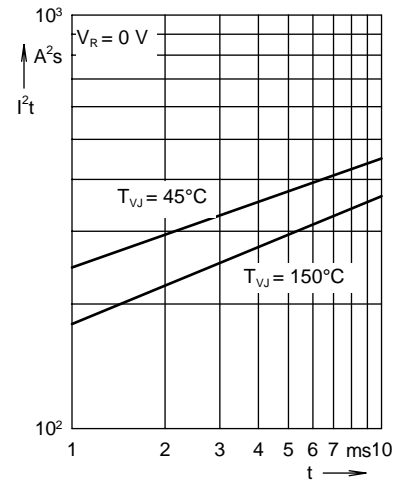


Fig. 3 I^2t versus time per diode

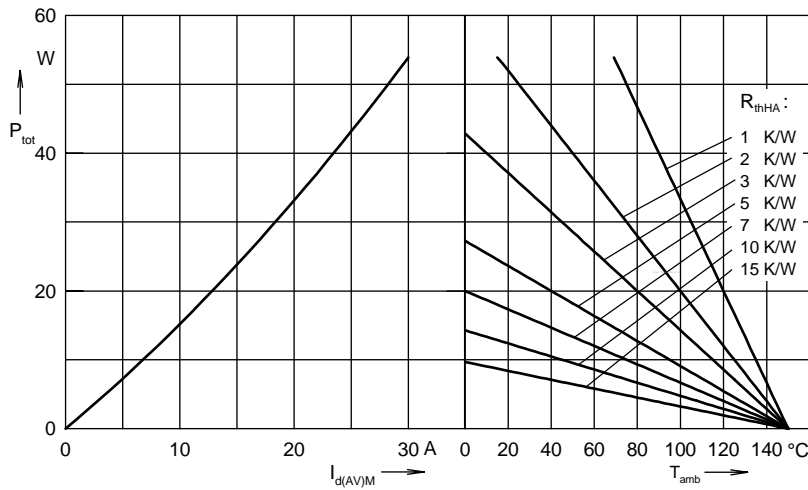


Fig. 4 Power dissipation versus direct output current and ambient temperature, sine 180°

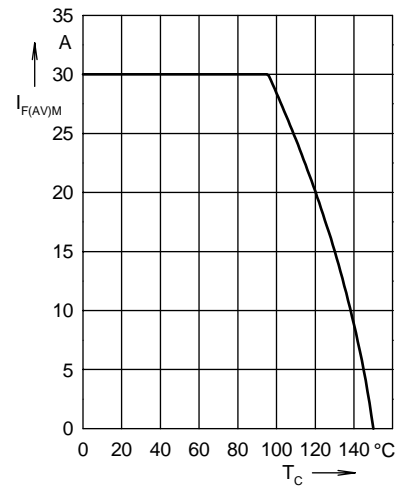


Fig. 5 Max. forward current versus case temperature

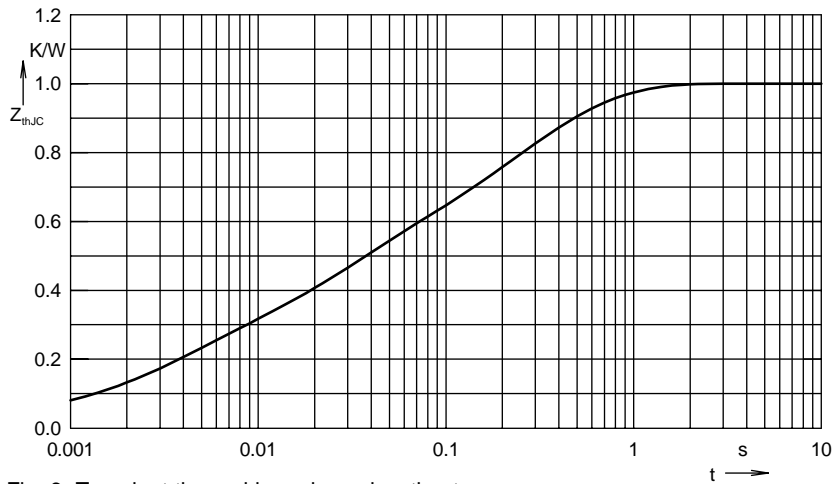


Fig. 6 Transient thermal impedance junction to case

Constants for Z_{thJC} calculation:

| i | R_{thi} (K/W) | t_i (s) |
|---|-----------------|-----------|
| 1 | 0.01362 | 0.0001 |
| 2 | 0.1962 | 0.00316 |
| 3 | 0.267 | 0.023 |
| 4 | 0.3052 | 0.4 |
| 5 | 0.218 | 0.15 |