

Features

- Zero Reverse Recovery Current
- Positive Temperature Coefficient
- High-Speed Switching
- Epoxy Meets UL 94 V-0 Flammability Rating
- Halogen Free. "Green" Device (Note 1)
- Lead Free Finish/RoHS Compliant(Note 1) ("P" Suffix designates RoHS Compliant. See ordering information)

Benefits

- Temperature-Independent Performance
- Low Switching Loss
- Low Heat Dissipation Requirements

Applications

- Switching Power Supply
- Power Factor Correction
- Motor Drive, Traction
- Charging Pile

Maximum Ratings

- Operating Junction Temperature Range: -55°C to +175°C
- Storage Temperature Range: -55°C to +175°C
- Thermal Resistance: 0.47°C/W Junction to Case

| MCC Part Number | Device Marking |
|-----------------|----------------|
| SICPT20120Y | SICPT20120Y |

| | | | |
|---------------------------------|-----------|-------|--|
| Peak Repetitive Reverse Voltage | V_{RRM} | 1200V | |
| Surge Peak Reverse Voltage | V_{RSM} | 1200V | |
| DC Reverse Voltage | V_{DC} | 1200V | |
| Average Forward Current | I_F | 20A | $T_J=157^\circ\text{C}$ |
| Peak Forward Surge Current | I_{FSM} | 160A | $T_C=25^\circ\text{C}$, $t_p=10\text{ms}$, Half Sine Pulse |
| Power Dissipation | P_D | 319W | $T_C=25^\circ\text{C}$ |

Note:1. Halogen free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.

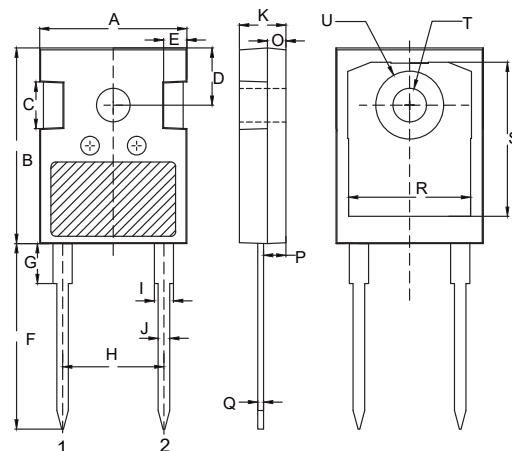
2. High Temperature Solder Exemptions Applied, see EU Directive Annex 7a.

Internal Structure:



20Amp Silicon Carbide Schottky Barrier Rectifier 1200 Volts

TO-247AD



| DIM | DIMENSIONS | | | | NOTE |
|-----|------------|-------|-------|-------|------|
| | INCHES | | MM | | |
| | MIN | MAX | MIN | MAX | |
| A | 0.610 | 0.663 | 15.50 | 16.85 | |
| B | 0.815 | 0.839 | 20.70 | 21.30 | |
| C | 0.189 | 0.205 | 4.80 | 5.20 | |
| D | 0.242 | | 6.15 | | BSC. |
| E | 0.091 | 0.106 | 2.30 | 2.70 | |
| F | 0.772 | 0.796 | 19.62 | 20.22 | |
| G | ---- | 0.169 | ---- | 4.30 | |
| H | 0.428 | | 10.88 | | BSC. |
| I | 0.075 | 0.087 | 1.91 | 2.21 | |
| J | 0.044 | 0.054 | 1.11 | 1.36 | |
| K | 0.189 | 0.205 | 4.80 | 5.20 | |
| O | 0.073 | 0.085 | 1.85 | 2.15 | |
| P | 0.087 | 0.103 | 2.21 | 2.61 | |
| Q | 0.020 | 0.030 | 0.51 | 0.75 | |
| R | 0.512 | 0.535 | 13.00 | 13.60 | |
| S | 0.640 | 0.663 | 16.25 | 16.85 | |
| T | 0.134 | 0.150 | 3.40 | 3.80 | Φ |
| U | ---- | 0.287 | ---- | 7.30 | Φ |

Electrical Characteristics @ 25°C (Unless Otherwise Specified)

| Parameter | Symbol | Conditions | Typ. | Max. | Units |
|---------------------------|--------|------------------------------|------|------|---------|
| Forward Voltage | V_F | $I_F=20A, T_J=25^\circ C$ | 1.34 | 1.55 | V |
| | | $I_F=20A, T_J=175^\circ C$ | 1.86 | 2.70 | V |
| Reverse Leakage Current | I_R | $V_R=1200V, T_J=25^\circ C$ | 0.5 | 25 | μA |
| | | $V_R=1200V, T_J=175^\circ C$ | 5 | | μA |
| Total Capacitive Charge | Q_C | $V_R=800V$ | 114 | | nC |
| Total capacitance | C | $V_R=0V, f=1MHz$ | 1552 | | pF |
| | | $V_R=400V, f=1MHz$ | 107 | | pF |
| | | $V_R=800V, f=1MHz$ | 79 | | pF |
| Capacitance Stored Energy | E_C | $V_R=800V$ | 29.3 | | μJ |

Curve Characteristics

Fig. 1 - Typical Forward Characteristics

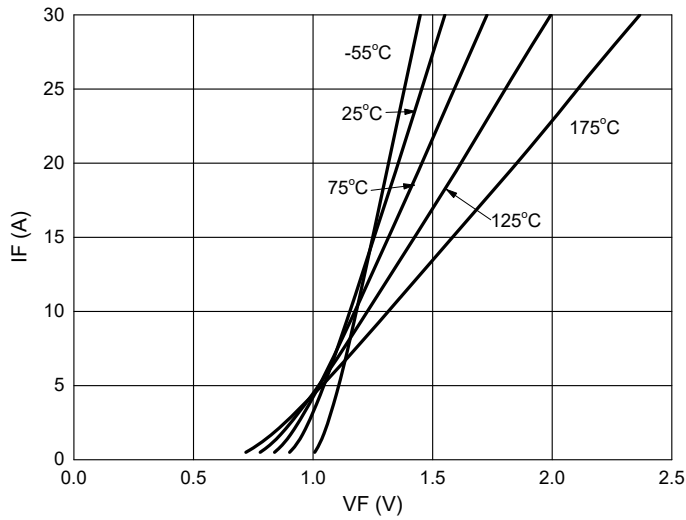


Fig. 2 - Typical Reverse Leakage Characteristics

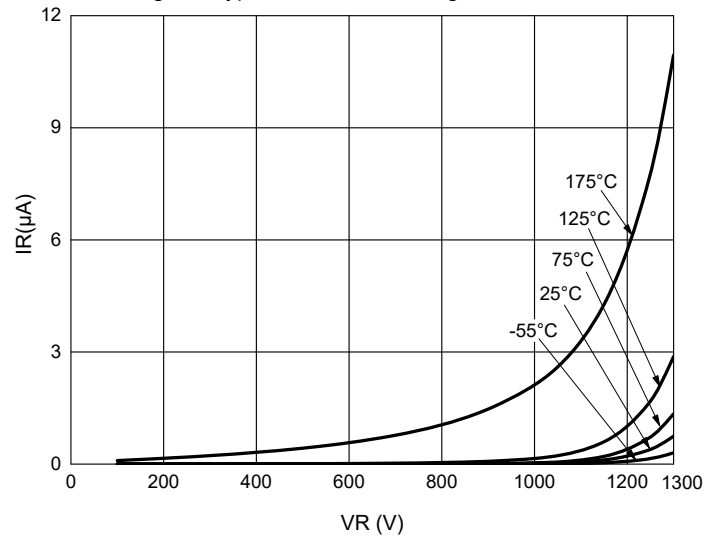


Fig. 3 - Capacitance vs Reverse Voltage

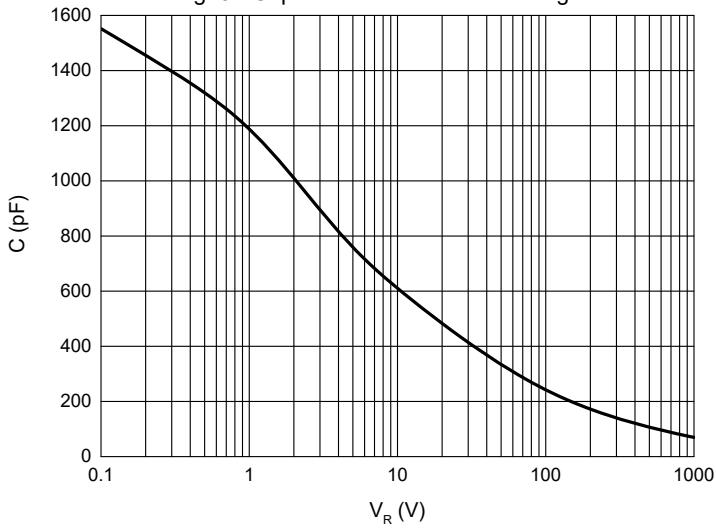


Fig. 4 - Typical Power Derating

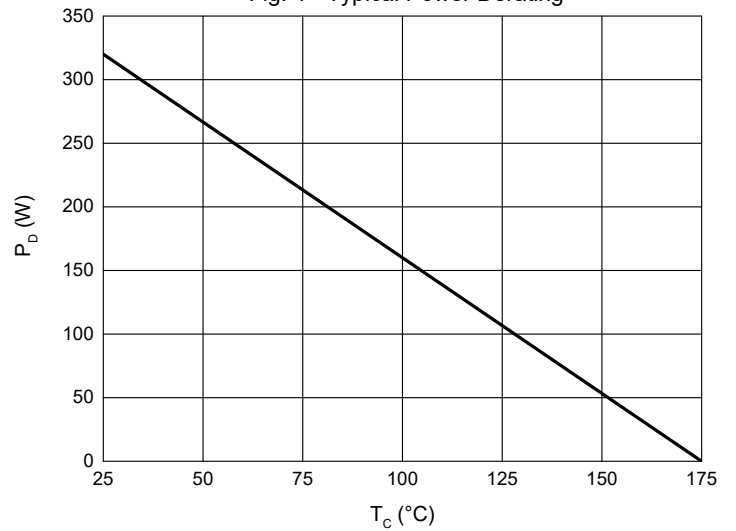


Fig. 5 - Capacitive Charge vs Reverse Voltage

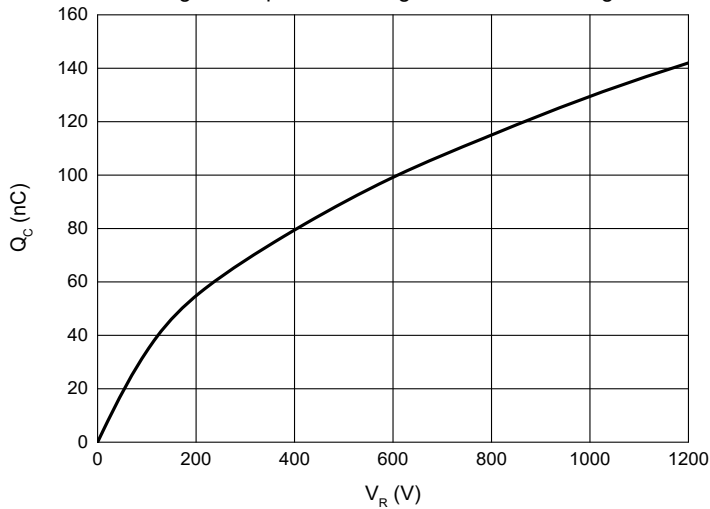
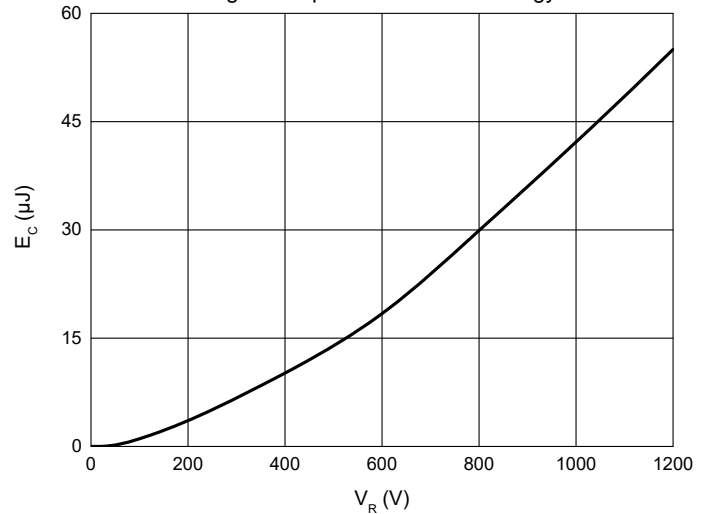


Fig. 6 - Capacitance Stored Energy



Curve Characteristics

Fig. 7 - Current Derating

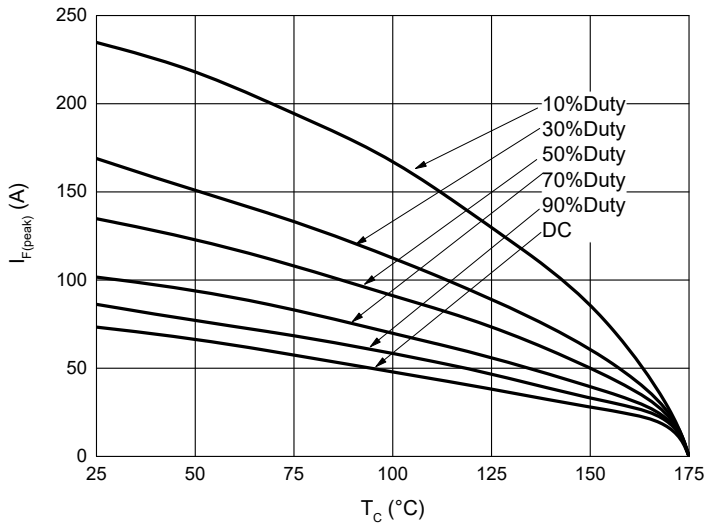
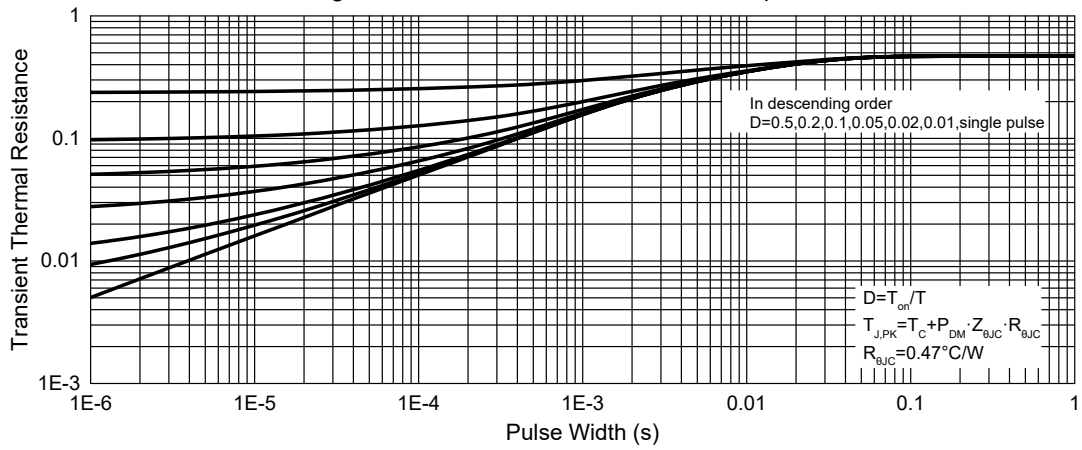


Fig. 8 - Normalized Transient Thermal Impedance



Ordering Information

| Device | Packing |
|----------------|------------------|
| SICPT20120Y-BP | Bulk: 30pcs/Tube |

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