

## Product Summary

| $V_{RRM}$ | $I_F$ (Per Device) | $Q_C$ |
|-----------|--------------------|-------|
| 1200V     | 80A                | 217nC |



**合肥矽普半导体**

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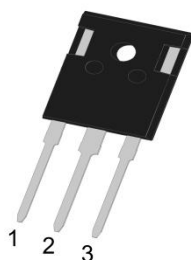
## Feature

- Negligible reverse recovery
- High-speed switching
- Positive Temperature Coefficient
- Temperature-Independent Switching

## Applications

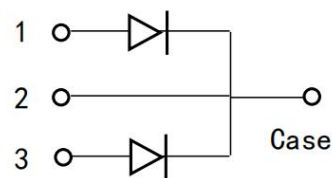
- Switch mode power supply
- Solar inverter
- Data Center
- Uninterruptible power supply

## Package

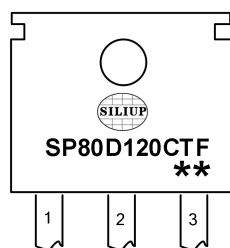


TO-247(1:G 2:D 3:S)

## Circuit diagram



## Marking



SP80D120CTF :Device Code  
\*\* :Week Code

## Order Information

| Device      | Package | Unit/Tube |
|-------------|---------|-----------|
| SP80D120CTF | TO-247  | 30        |

### Absolute maximum ratings (Tc=25°C, unless otherwise noted)

| Parameter                                          | Symbol          | Rating       | Units |
|----------------------------------------------------|-----------------|--------------|-------|
| Drain-Source Voltage                               | $V_{RRM}$       | 1200         | V     |
| Continuous forward current (T <sub>C</sub> =25°C)  | $I_F$           | 107*/214**   | A     |
| Continuous forward current (T <sub>C</sub> =150°C) |                 | 40*/80**     |       |
| Non-repetitive forward surge current               | $I_{FSM}$       | 320*/640**   | A     |
| Repetitive Peak Forward Surge Current              | $I_{FRM}$       | 230*/460**   | A     |
| Power Dissipation(T <sub>C</sub> =25°C)            | $P_D$           | 467*/934**   | W     |
| Power Dissipation(T <sub>C</sub> =150°C)           |                 | 203*/406**   |       |
| Thermal Resistance Junction-to-Case                | $R_{\theta JC}$ | 0.32*/0.16** | °C/W  |
| Storage Temperature Range                          | $T_{STG}$       | -55 to 175   | °C    |
| Operating Junction Temperature Range               | $T_J$           | -55 to 175   | °C    |

### Electrical characteristics (Ta=25°C, unless otherwise noted&Per Leg)

| Parameter                     | Symbol   | Conditions                    | Min. | Typ. | Max. | Unit |
|-------------------------------|----------|-------------------------------|------|------|------|------|
| <b>Static Characteristics</b> |          |                               |      |      |      |      |
| DC blocking voltage           | $V_{DC}$ |                               | 1200 | -    | -    | V    |
| Forward voltage               | $V_F$    | $I_F=40A, T_C=25^{\circ}C$    | -    | 1.45 | 1.65 | V    |
|                               |          | $I_F=40A, T_C=175^{\circ}C$   | -    | 2.2  | -    |      |
| Reverse current               | $I_R$    | $V_R=1200V, T_C=25^{\circ}C$  | -    | 2    | 20   | uA   |
|                               |          | $V_R=1200V, T_C=175^{\circ}C$ | -    | 7    | -    |      |
| Total capacitive charge       | $Q_C$    | $V_R=800V$                    | -    | 217  | -    | nC   |
| Total capacitance             | C        | $V_R=0V, f=1MHZ$              | -    | 2855 | -    | pF   |
|                               |          | $V_R=400V, f=1MHZ$            | -    | 201  | -    |      |
|                               |          | $V_R=800V, f=1MHZ$            | -    | 145  | -    |      |

**Note:**

\* per leg, \*\* per device

## Typical Characteristics (Per Leg)

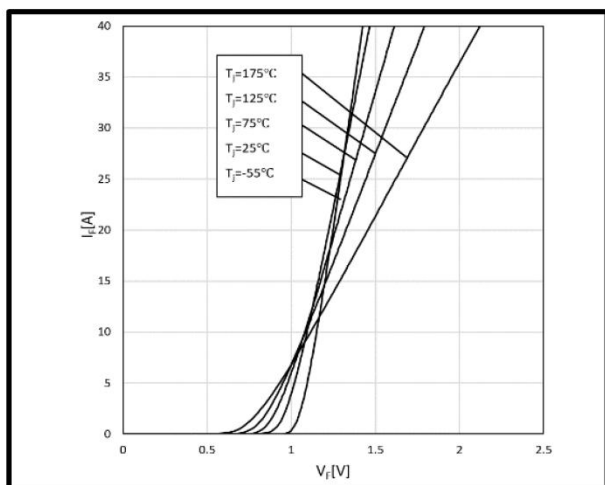


图 1 典型正向特性曲线

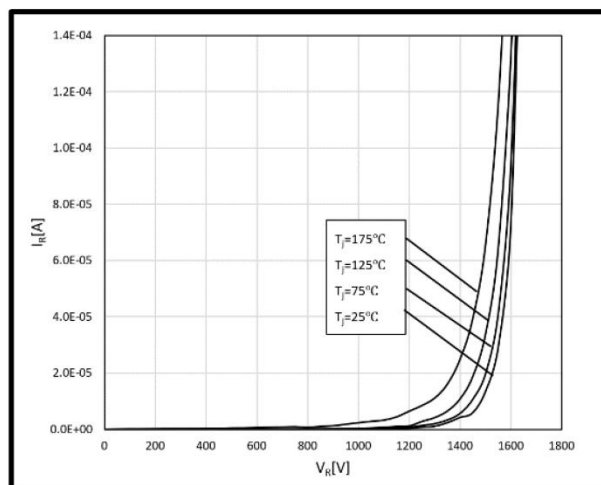


图 2 典型反向特性曲线

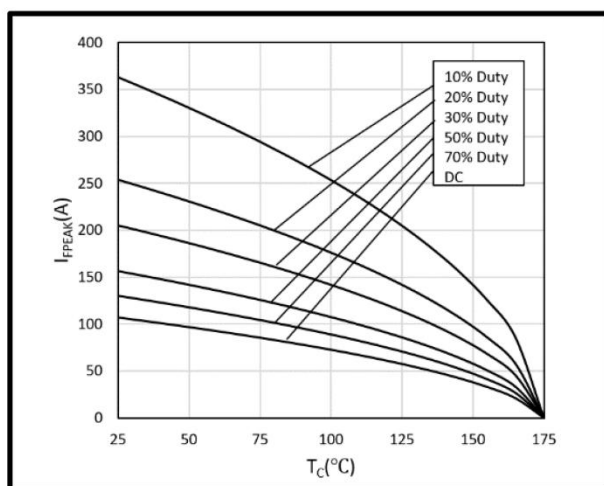


图 3 典型电流降额曲线

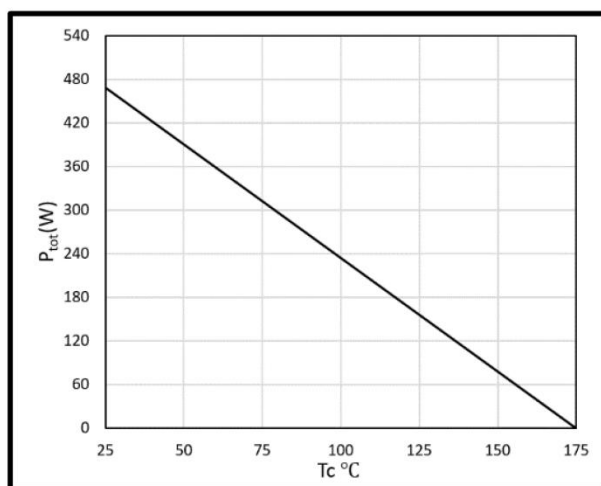


图 4 典型功率降额曲线

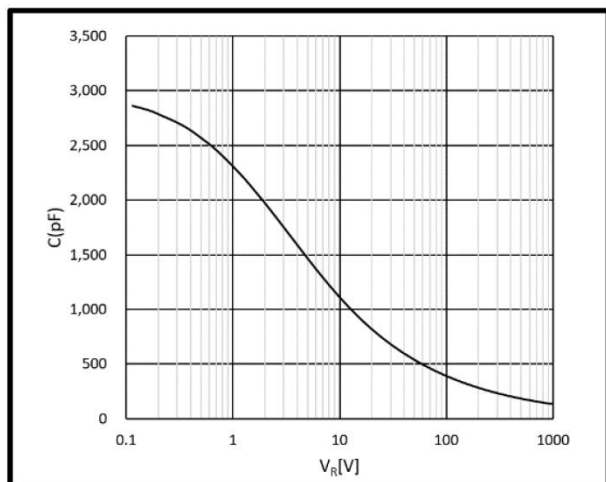


图 5 典型电容与反向电压曲线

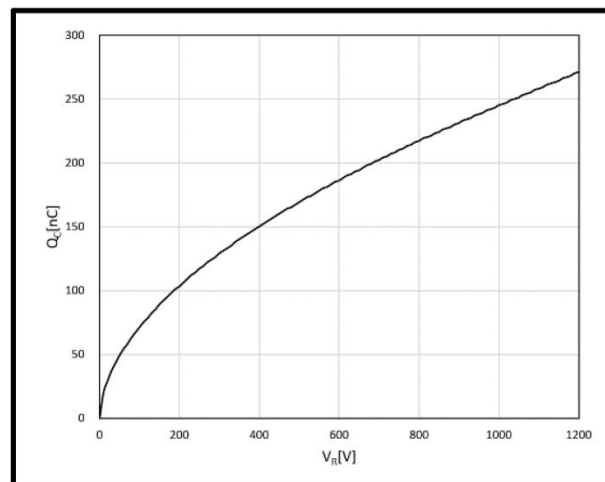


图 6 典型存储电荷与反向电压曲线

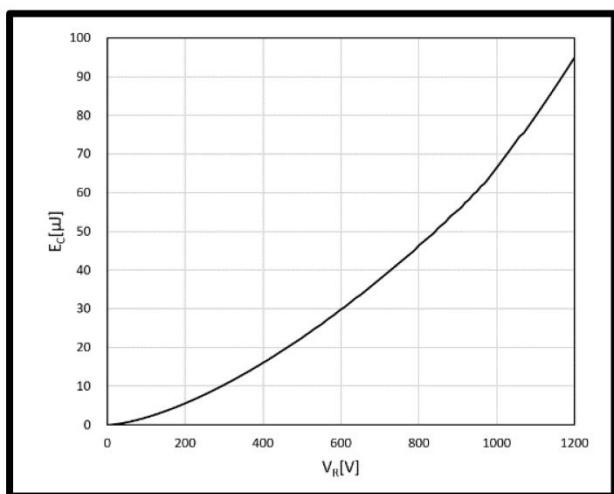


图 7 典型电容能量与反向电压曲线

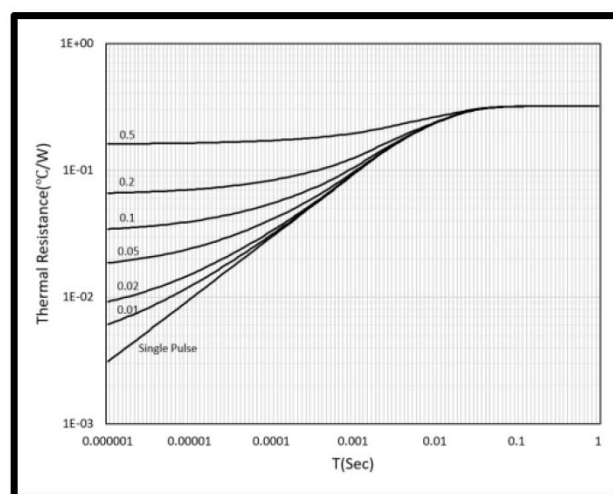
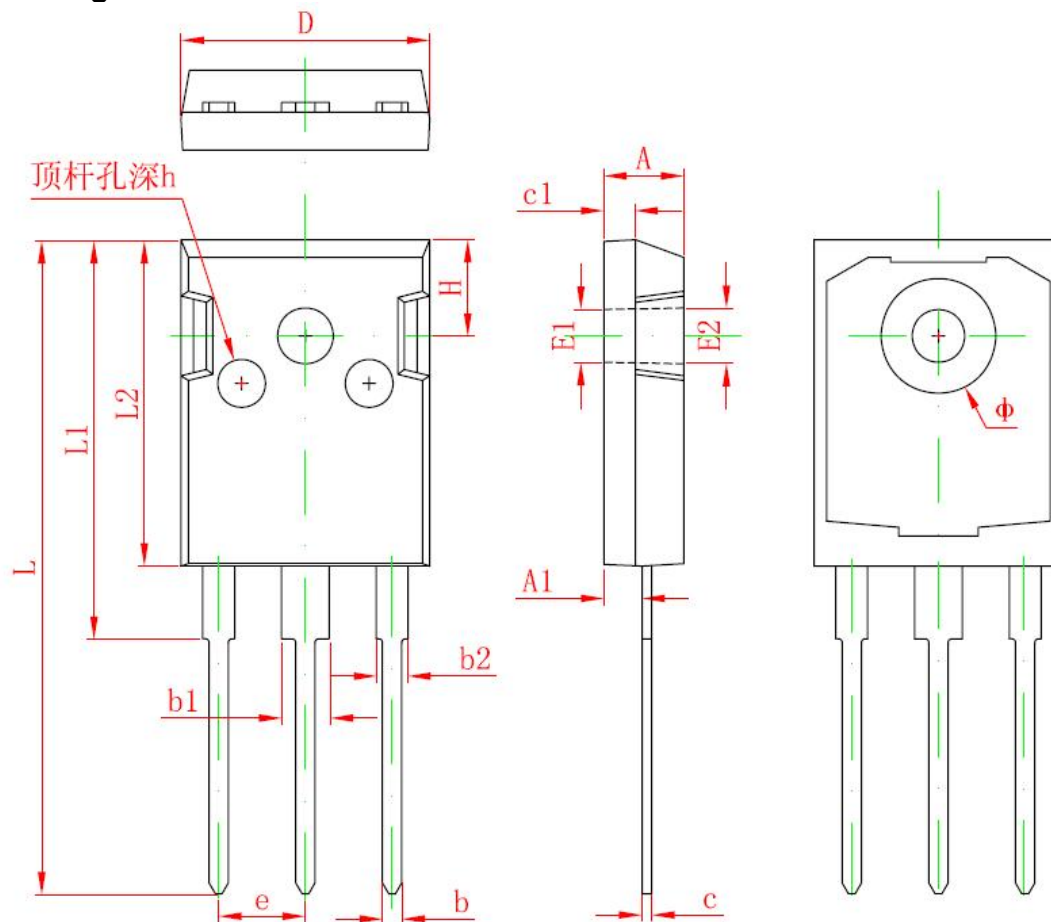


图 8 瞬态热阻抗

## TO-247 Package Information



| Symbol | Dimensions In Millimeters |        | Dimensions In Inches |       |
|--------|---------------------------|--------|----------------------|-------|
|        | Min.                      | Max.   | Min.                 | Max.  |
| A      | 4.850                     | 5.150  | 0.191                | 0.200 |
| A1     | 2.200                     | 2.600  | 0.087                | 0.102 |
| b2     | 1.800                     | 2.200  | 0.071                | 0.087 |
| b      | 1.000                     | 1.400  | 0.039                | 0.055 |
| b1     | 2.800                     | 3.200  | 0.110                | 0.126 |
| c      | 0.500                     | 0.700  | 0.020                | 0.028 |
| c1     | 1.900                     | 2.100  | 0.075                | 0.083 |
| D      | 15.450                    | 15.750 | 0.608                | 0.620 |
| E1     | 3.500 REF.                |        | 0.138 REF.           |       |
| E2     | 3.600 REF.                |        | 0.142 REF.           |       |
| L      | 40.900                    | 41.300 | 1.610                | 1.626 |
| L1     | 24.800                    | 25.100 | 0.976                | 0.988 |
| L2     | 20.300                    | 20.600 | 0.799                | 0.811 |
| Φ      | 7.100                     | 7.300  | 0.280                | 0.287 |
| e      | 5.450 TYP.                |        | 0.215 TYP.           |       |
| H1     | 5.980 REF.                |        | 0.235 REF.           |       |
| h      | 0.000                     | 0.300  | 0.000                | 0.012 |