

| | |
|-------|---------|
| V_R | 1200V |
| I_F | 5A/10A* |
| Q_C | 17nC |

*(Per leg / Both legs)

●Features

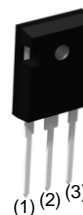
- 1) Shorter recovery time
- 2) Reduced temperature dependence
- 3) High-speed switching possible

●Construction

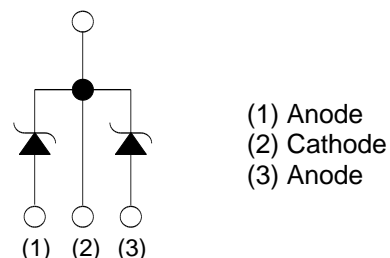
Silicon carbide epitaxial planer type

●Outline

TO-247



●Inner circuit



●Packaging specifications

| | | |
|------|---------------------------|-----------|
| Type | Packaging | Tube |
| | Reel size (mm) | - |
| | Tape width (mm) | - |
| | Basic ordering unit (pcs) | 30 |
| | Taping code | C |
| | Marking | SCS210KE2 |

●Absolute maximum ratings ($T_j = 25^\circ\text{C}$)

| Parameter | Symbol | Value | Unit |
|---|-----------|----------------------|------------------|
| Reverse voltage (repetitive peak) | V_{RM} | 1200 | V |
| Reverse voltage (DC) | V_R | 1200 | V |
| Continuous forward current ^{*7} | I_F | 5/10 ^{*1} | A |
| Surge no repetitive forward current ^{*7} | I_{FSM} | 23/46 ^{*2} | A |
| | | 87/170 ^{*3} | A |
| | | 18/36 ^{*4} | A |
| Repetitive peak forward current ^{*7} | I_{FRM} | 24/49 ^{*5} | A |
| Total power dissipation ^{*7} | P_D | 80/170 ^{*6} | W |
| Junction temperature | T_j | 175 | $^\circ\text{C}$ |
| Range of storage temperature | T_{stg} | -55 to +175 | $^\circ\text{C}$ |

*1 $T_c=148^\circ\text{C}/T_c=150^\circ\text{C}$ *2 $PW=8.3\text{ms}$ sinusoidal, $T_j=25^\circ\text{C}$ *3 $PW=10\mu\text{s}$ square, $T_j=25^\circ\text{C}$

*4 $PW=8.3\text{ms}$ sinusoidal, $T_j=150^\circ\text{C}$ *5 $T_c=100^\circ\text{C}$, $T_j=150^\circ\text{C}$, Duty cycle=10%

*6 $T_c=25^\circ\text{C}$ *7 Per leg / Both legs

●Electrical characteristics (T_j = 25°C) (Per leg)

| Parameter | Symbol | Conditions | Values | | | Unit |
|-------------------------|-----------------|--|--------|------|------|------|
| | | | Min. | Typ. | Max. | |
| DC blocking voltage | V _{DC} | I _R =0.1mA | 1200 | - | - | V |
| Forward voltage | V _F | I _F =5A, T _j =25°C | - | 1.4 | 1.6 | V |
| | | I _F =5A, T _j =150°C | - | 1.8 | - | V |
| | | I _F =5A, T _j =175°C | - | 1.9 | - | V |
| Reverse current | I _R | V _R =1200V, T _j =25°C | - | 5 | 100 | μA |
| | | V _R =1200V, T _j =150°C | - | 40 | - | μA |
| | | V _R =1200V, T _j =175°C | - | 65 | - | μA |
| Total capacitance | C | V _R =1V, f=1MHz | - | 270 | - | pF |
| | | V _R =800V, f=1MHz | - | 21 | - | pF |
| Total capacitive charge | Q _C | V _R =800V, di/dt=500A/μs | - | 17 | - | nC |
| Switching time | t _c | V _R =800V, di/dt=500A/μs | - | 15 | - | ns |

●Thermal characteristics

| Parameter | Symbol | Conditions | Values | | | Unit |
|--------------------|----------------------|------------|--------|------|------|------|
| | | | Min. | Typ. | Max. | |
| Thermal resistance | R _{th(j-c)} | Per Leg | - | 1.5 | 1.8 | °C/W |
| | | Both Legs | - | 0.75 | 0.86 | °C/W |

●Electrical characteristic curves

Fig.1 $V_F - I_F$ Characteristics (Per leg)

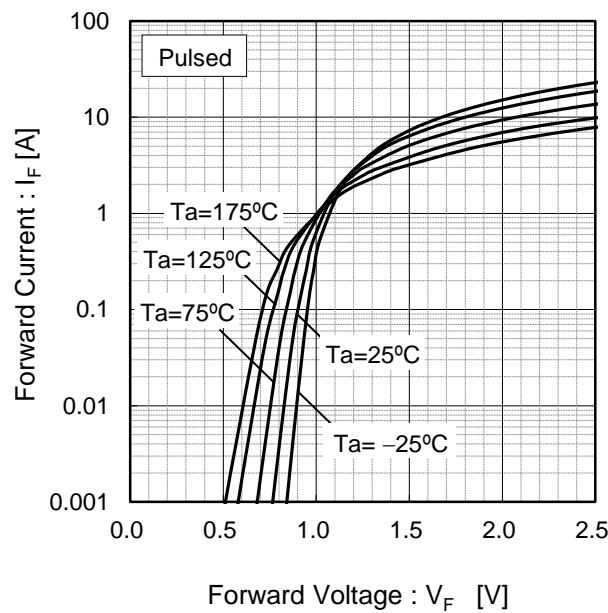


Fig.2 $V_F - I_F$ Characteristics (Per leg)

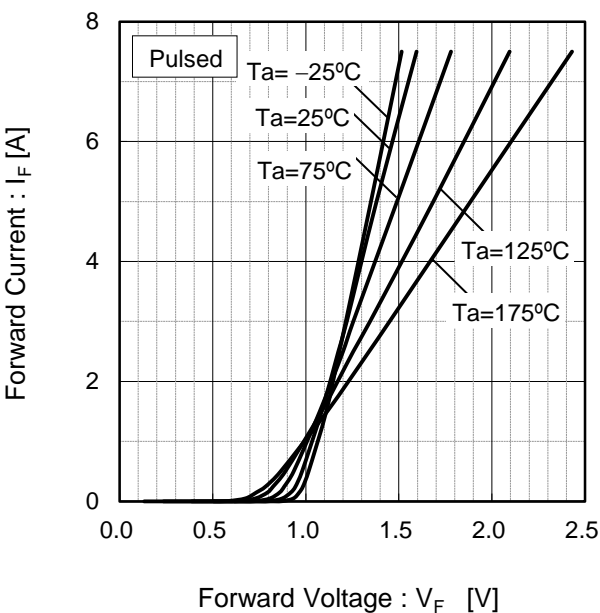


Fig.3 $V_R - I_R$ Characteristics (Per leg)

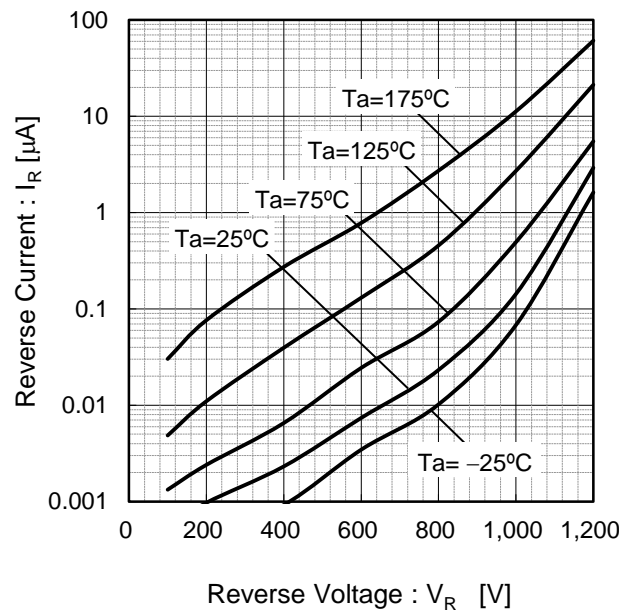
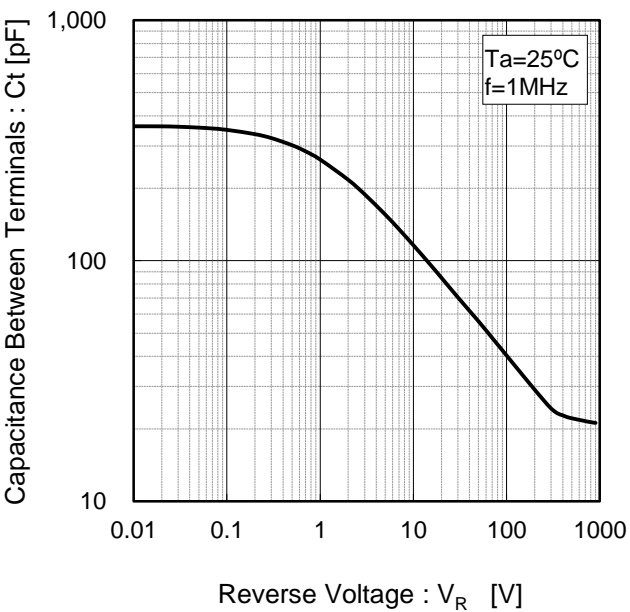


Fig.4 $V_R - C_t$ Characteristics (Per leg)



●Electrical characteristic curves

Fig.5 Thermal Resistance vs. Pulse Width (Per leg)

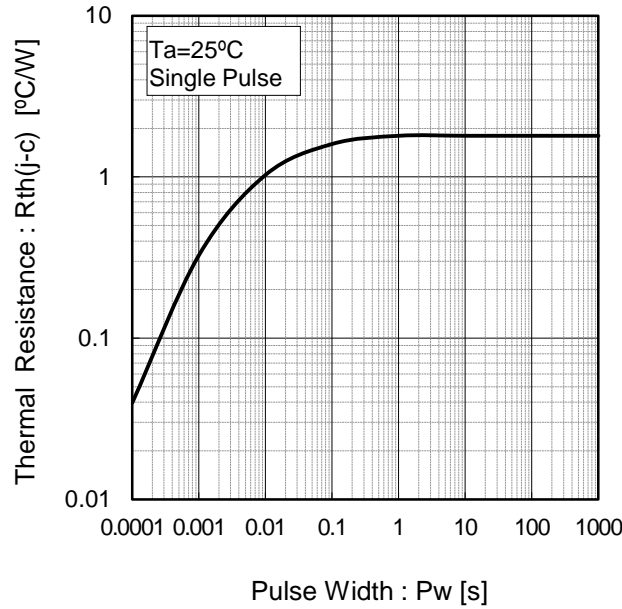


Fig.6 Power Dissipation (Per leg)

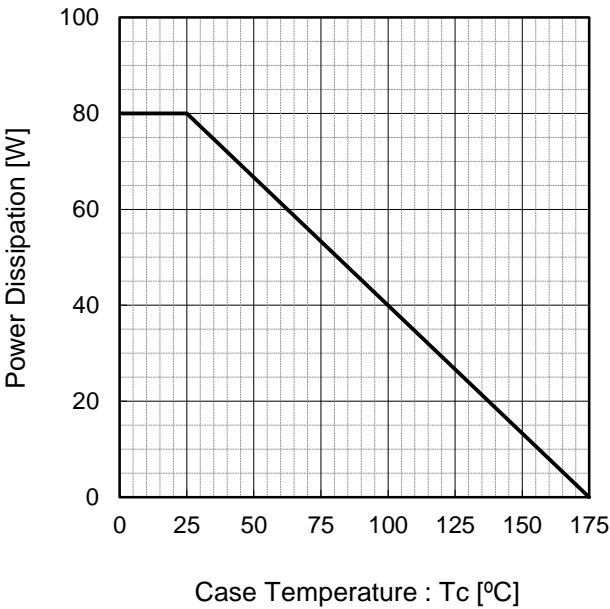


Fig.7 I_p - T_c Derating Curve (Per leg)

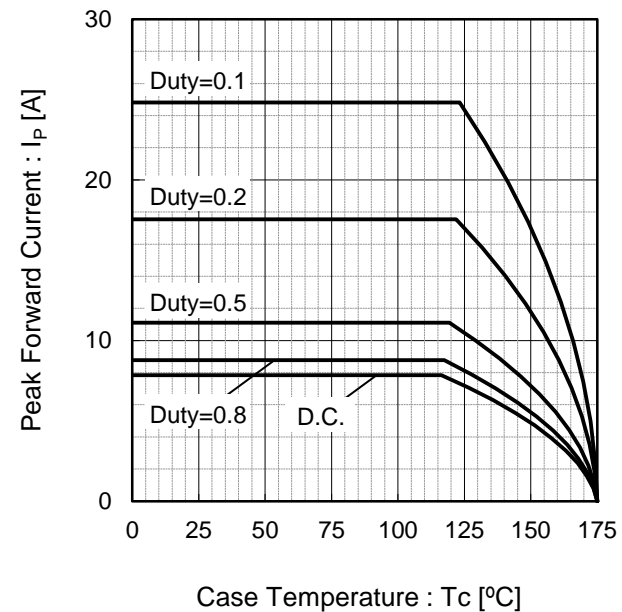
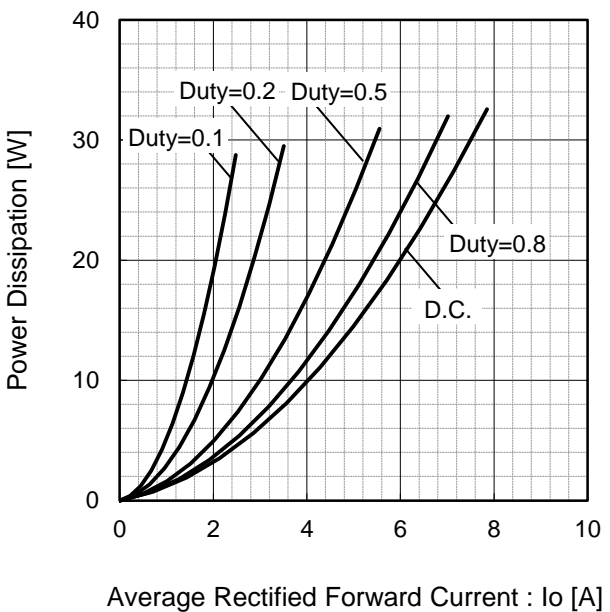
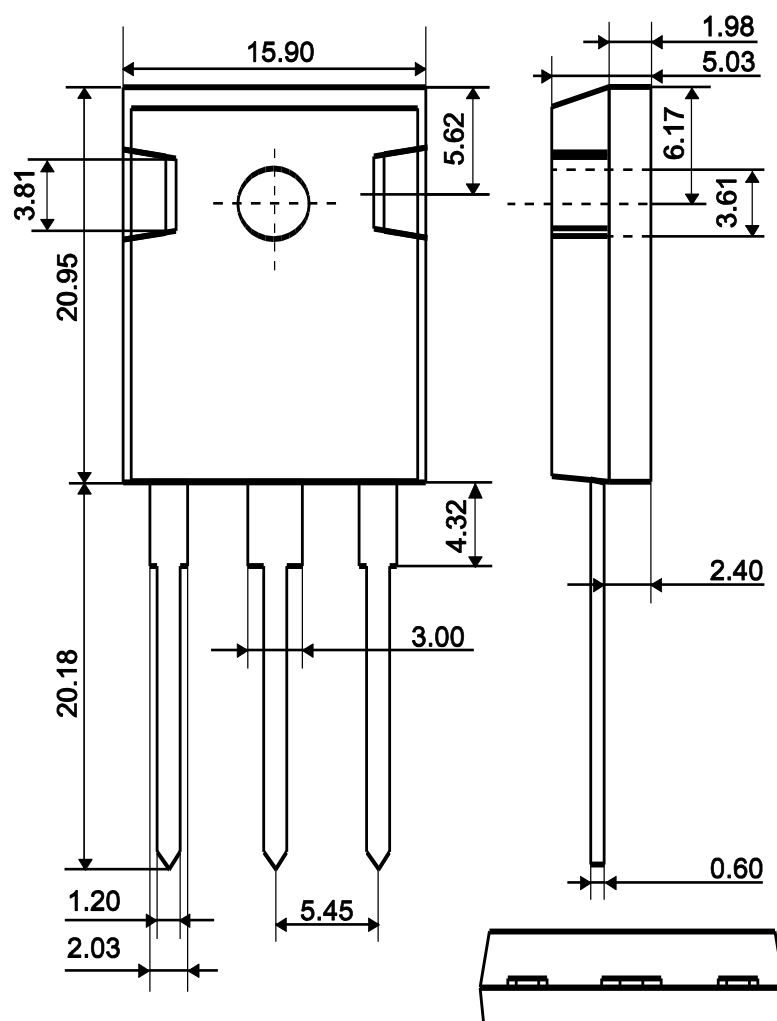


Fig.8 I_o - P_f Characteristics (Per leg)



●Dimensions (Unit : mm)

TO-247



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