# SCS220KGHR

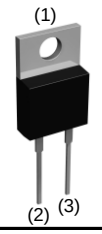
**SiC Schottky Barrier Diode**

Data Sheet

| | |
|---|---|
| $V_R$ | 1200V |
| $I_F$ | 20A |
| $Q_C$ | 65nC |

**●AEC-Q101 Qualified**

**TO-220AC**



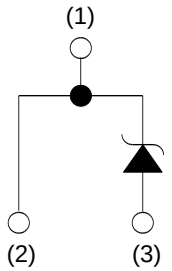

**●Features**

1) Shorter recovery time

2) Reduced temperature dependence

3) High-speed switching possible

**●Inner circuit**




(1) Cathode
(2) Cathode
(3) Anode

**●Packaging specifications**

| | | |
|---|---|---|
| Type | Packaging | Tube |
| | Reel size (mm) | - |
| | Tape width (mm) | - |
| | Basic ordering unit (pcs) | 50 |
| | Taping code | C |
| | Marking | SCS220KG |

**●Construction**

Silicon carbide epitaxial planer Schottky Diode

**●Absolute maximum ratings** (Tj = 25°C)

| Parameter | Symbol | Value | Unit |
|---|---|---|---|
| Reverse voltage (repetitive peak) | $V_{RM}$ | 1200 | V |
| Reverse voltage (DC) | $V_R$ | 1200 | V |
| Continuous forward current | $I_F$ | 20*1 | A |
| Surge no repetitive forward current | $I_{FSM}$ | 82*2 | A |
| | | 310*3 | A |
| | | 62*4 | A |
| Repetitive peak forward current | $I_{FRM}$ | 77*5 | A |
| Total power disspation | $P_D$ | 210*6 | W |
| Junction temperature | Tj | 175 | °C |
| Range of storage temperature | Tstg | −55 to +175 | °C |

*1 Tc=133°C *2 PW=8.3ms sinusoidal, Tj=25°C *3 PW=10μs square, Tj=25°C

*4 PW=8.3ms sinusoidal, Tj=150°C *5 Tc=100°C, Tj=150°C, Duty cycle=10% *6 Tc=25°C

## ●Electrical characteristics (Tj = 25°C)

| Parameter | Symbol | Conditions | Values | | | Unit |
|---|---|---|---|---|---|---|
| | | | Min. | Typ. | Max. | |
| DC blocking voltage | $V_{DC}$ | $I_R$ =0.4mA | 1200 | - | - | V |
| Forward voltage | $V_F$ | $I_F$=20A,Tj=25°C | - | 1.4 | 1.6 | V |
| | | $I_F$=20A,Tj=150°C | - | 1.8 | - | V |
| | | $I_F$=20A,Tj=175°C | - | 1.9 | - | V |
| Reverse current | $I_R$ | $V_R$=1200V,Tj=25°C | - | 20 | 400 | μA |
| | | $V_R$=1200V,Tj=150°C | - | 160 | - | μA |
| | | $V_R$=1200V,Tj=175°C | - | 260 | - | μA |
| Total capacitance | C | $V_R$=1V,f=1MHz | - | 1060 | - | pF |
| | | $V_R$=800V,f=1MHz | - | 85 | - | pF |
| Total capacitive charge | Qc | $V_R$=800V,di/dt=500A/μs | - | 65 | - | nC |
| Switching time | tc | $V_R$=800V,di/dt=500A/μs | - | 18 | - | ns |

## ●Thermal characteristics

| Parameter | Symbol | Conditions | Values | | | Unit |
|---|---|---|---|---|---|---|
| | | | Min. | Typ. | Max. | |
| Thermal resistance | $R_{th(j-c)}$ | - | - | 0.62 | 0.71 | °C/W |

## ●Electrical characteristic curves

Fig.1 $V_F$ - $I_F$ Characteristics

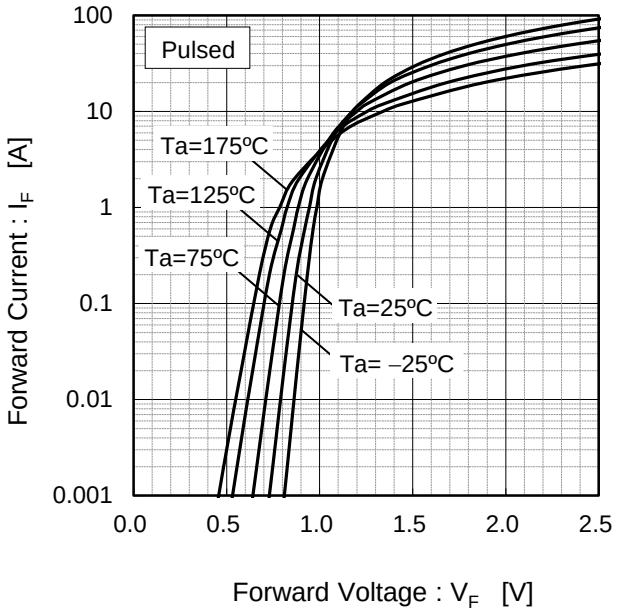



Fig.2 $V_F$ - $I_F$ Characteristics

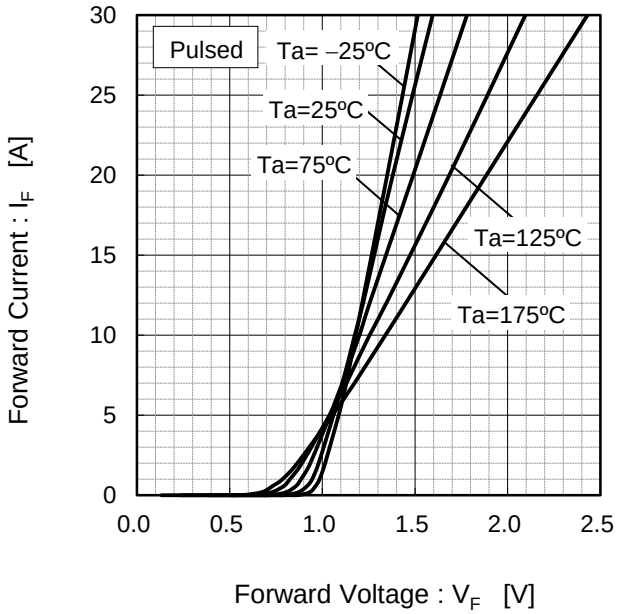



Fig.3 $V_R$ - $I_R$ Characteristics

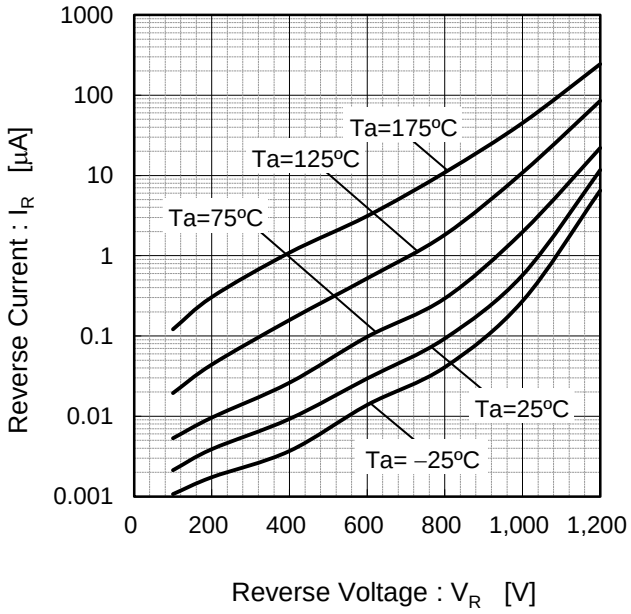
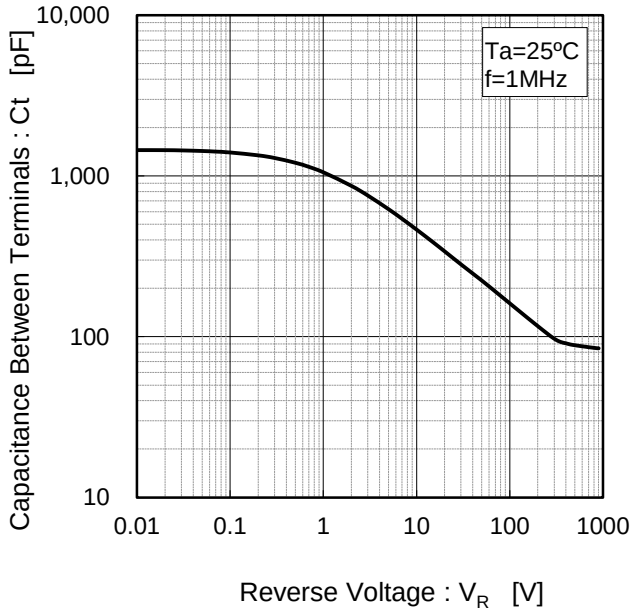



Fig.4 $V_R$-Ct Characteristics



## ●Electrical characteristic curves

Fig.5 Thermal Resistance vs. Pulse Width

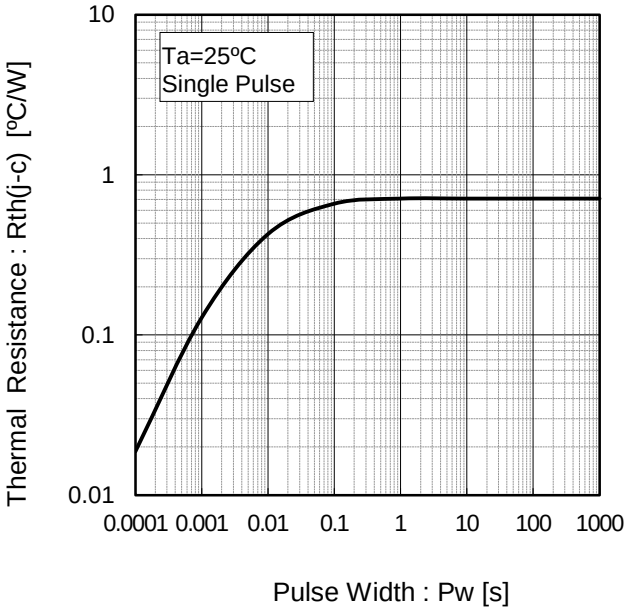



Fig.6 Power Dissipation

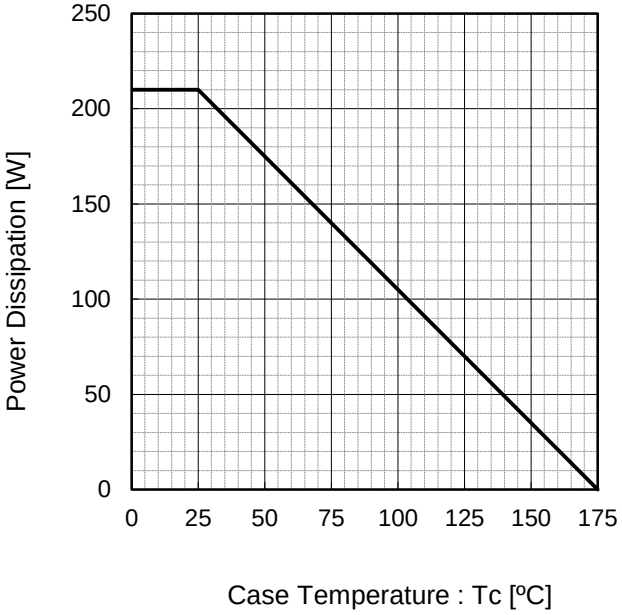



Fig.7 Ip-Tc Derating Curve

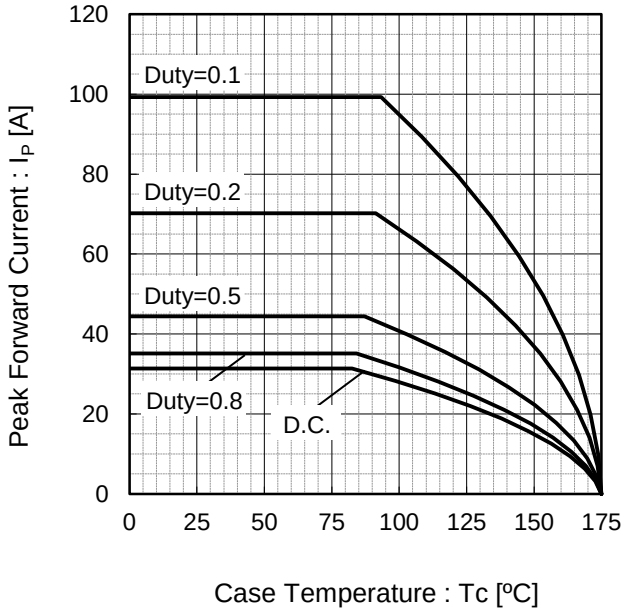
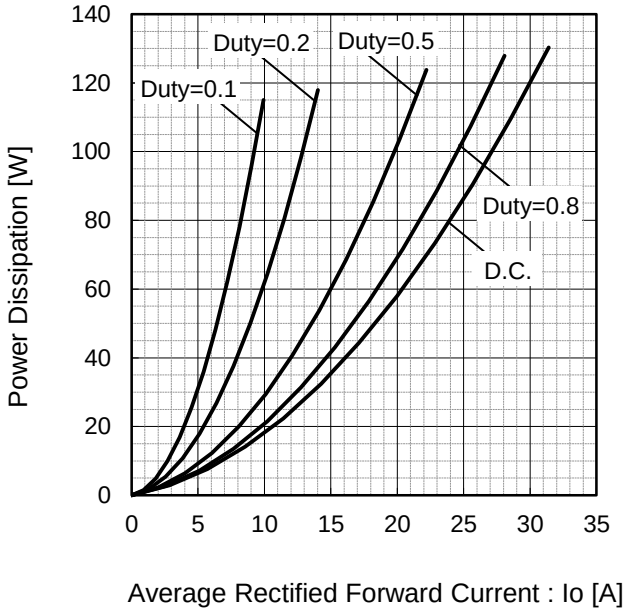
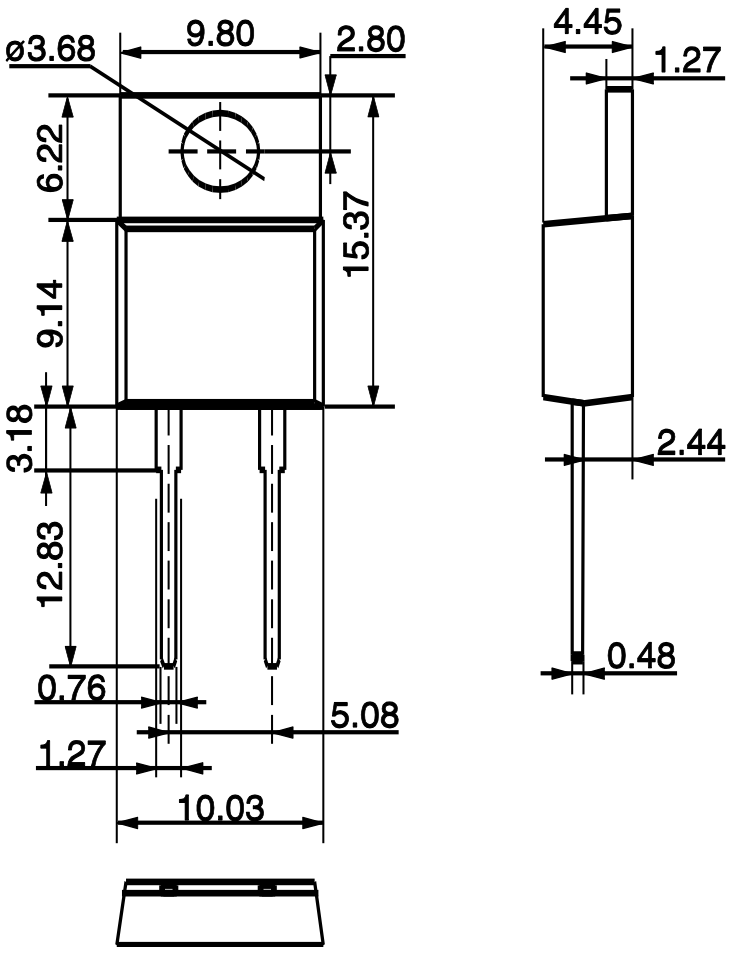



Fig.8 Io-Pf Characteristics



●**Dimensions** (Unit : mm)

**TO-220AC**



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