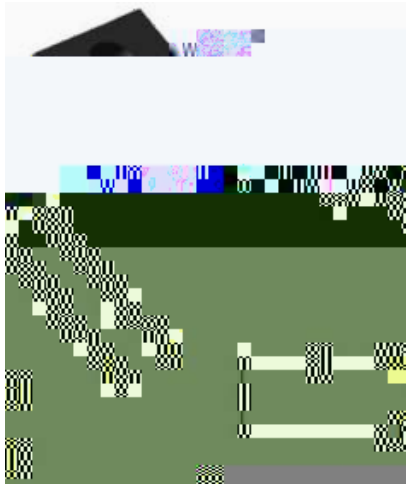




Silicon Carbide Schottky Diode

V_{RRM}	650V
$I_{F66^{\circ}C}$	20A
Q_C	62nC



Features

- Positive temperature coefficient
- Temperature-independent switching
- Maximum working temperature at 175 °C
- Unipolar device and zero recovery current
- Zero forward current
- Essentially no switching losses
- Reduction of heat sink requirements
- High-frequency operation
- Reduction of EMI

Typical Applications

Typical applications are in power factor inverter, uninterruptible power supply, inverter, electric car and charger.

Mechanical

- Package: TO-220AC
Molding compound meets UL 94 V-0 flammability rating, RoHS-compliant, halogen-free
- Terminals: Solderable leads
- Polarity: As marked

Maximum Ratings (unless otherwise specified)

PARAMETER	SYMBOL	UNIT	VALUE
Device marking code			D106520FQG2
Reverse voltage (repetitive peak) @ $T_J = 25^{\circ}C$	V_{RRM}	V	650
Reverse voltage (Surge Peak) @ $T_J = 25^{\circ}C$	V_{RSM}	V	650
Reverse voltage (DC) @ $T_J = 25^{\circ}C$	V_{DC}	V	650
Continuous forward current @ $T_J = 25^{\circ}C$	I_F	A	24
Continuous forward current @ $T_J = 65^{\circ}C$			20
Non-repetitive peak forward surge current @ $T_C = 25^{\circ}C$, $t_p = 10ms$, Half Sine Wave	I_{FSM}	A	160
Power Dissipation @ $T_J = 25^{\circ}C$	P_{TOT}	W	47
Power Dissipation @ $T_J = 100^{\circ}C$			20
θ_{JA} Value @ $T_C = 25^{\circ}C$, $t_p = 10ms$	θ_{JA}	$^{\circ}C/W$	128
Operating junction and Storage Temperature range	T_J, T_{STG}	$^{\circ}C$	-55 to +175



Y J D106520 F Q G2

■Electrical Characteristics

PARAMETER	SYMBOL	UNIT	TEST CONDITION	Typ.	Max.
Forward voltage drop	F	V	$I_F = 2.0 \text{ A}, T_J = 25^\circ \text{C}$	1.35	1.55
			$I_F = 2.0 \text{ A}, T_J = 175^\circ \text{C}$	1.75	-
Reverse leakage current	R	μA	$V_R = 65.0 \text{ V}, T_J = 25^\circ \text{C}$	1	25
			$V_R = 65.0 \text{ V}, T_J = 175^\circ \text{C}$	5	-
Total capacitive charge	C	nC	$V_R = 40.0 \text{ V}, T_J = 25^\circ \text{C}$ $Q_C = \int I_C (V) dV$	62	-
Total capacitance			$V_R = 0 \text{ V}, f = 1 \text{ MHz}$	1157	-
			$V_R = 2.00 \text{ V}_p, f = 1 \text{ MHz}$	115.6	-
			$V_R = 40.0 \text{ V}, f = 1 \text{ MHz}$	107	-
Capacitance Stored Energy	gyc	μJ	$V_R = 40.0 \text{ V}$	7.8	-

■Thermal Characteristics (at 25 $^\circ\text{C}$ unless otherwise specified)

PARAMETER	SYMBOL	UNIT	Value
Thermal resistance	$R_{\theta J-C}$	$^\circ\text{C/W}$	3.2

■Typical Characteristics

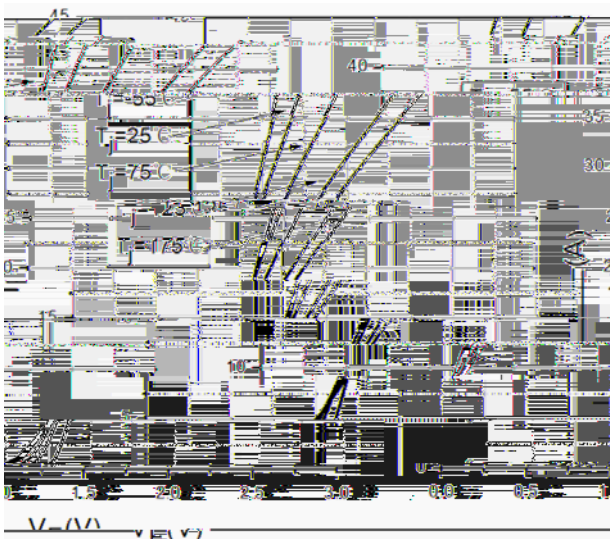


Figure 1. Forward Characteristic

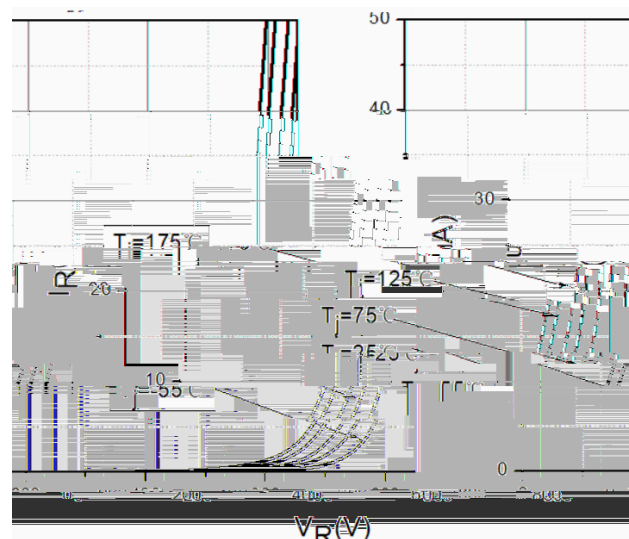


Figure 2. Reverse Characteristic

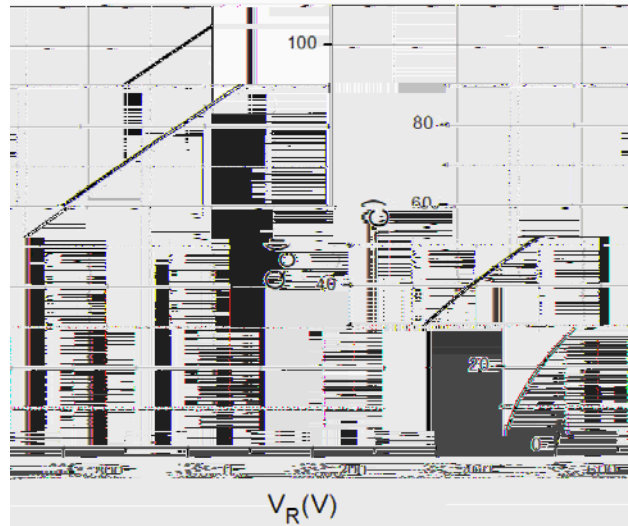
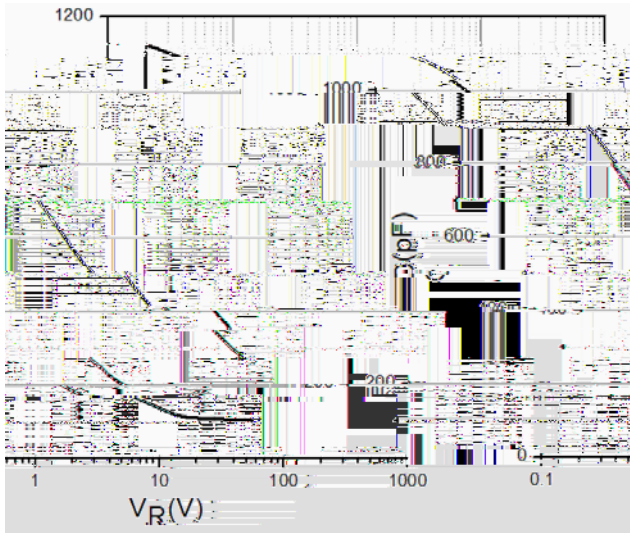


Figure 3. Capacitance vs. Reverse Voltage Figure 4. Total Capacitance Charge vs. Reverse Voltage

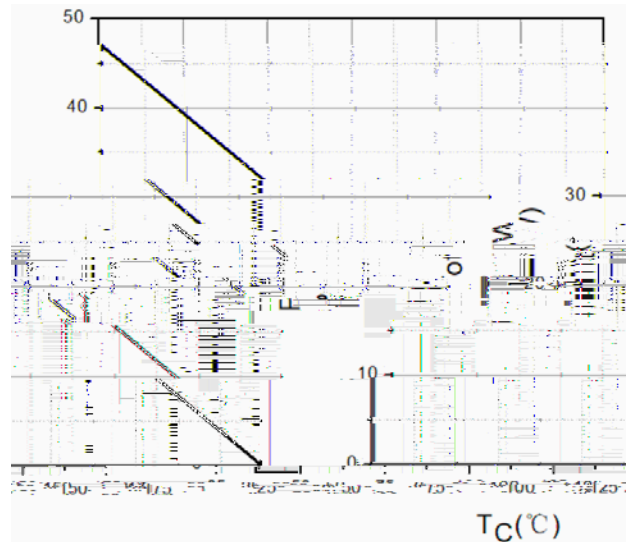
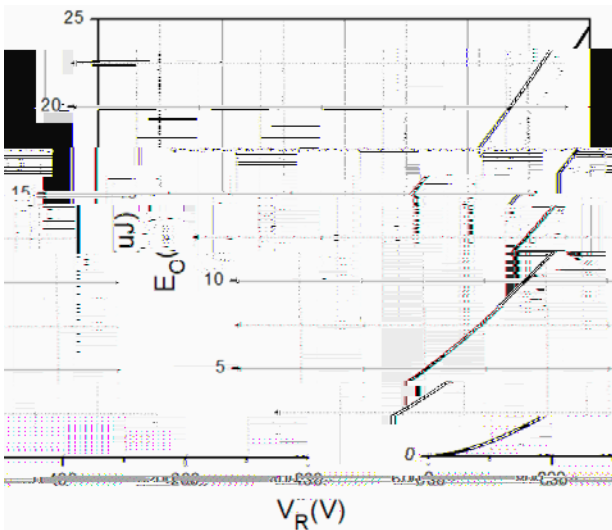


Figure 5. Capacitance Energy Storage vs. Reverse Voltage

Figure 6. Power Derating vs. Temperature

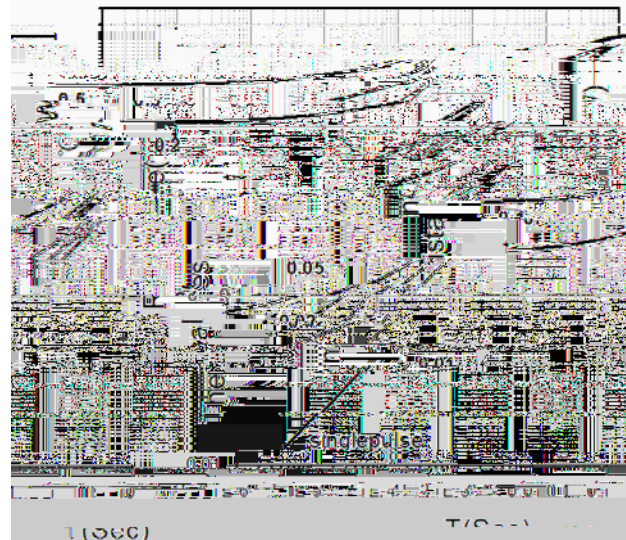
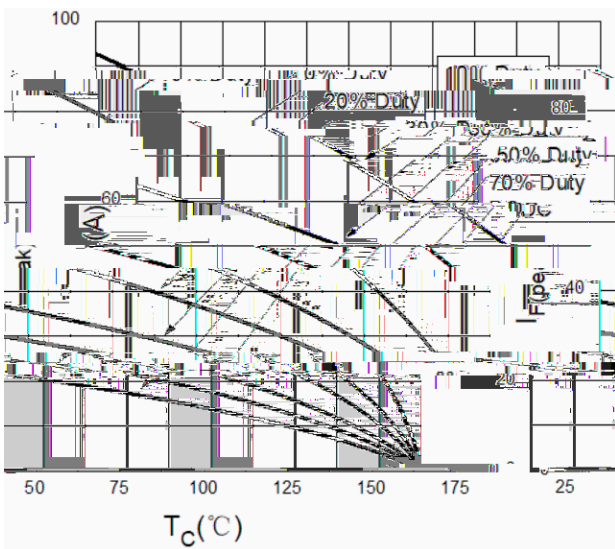


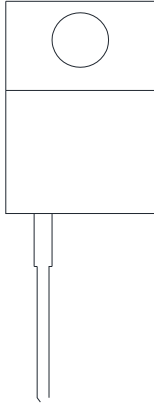
Figure 7. Current Derating vs. Temperature

Figure 8. Junction Thermal Impedance vs. Temperature



Y J D106520 F Q G2

■ Outline Dimensions



I T O-220AC		
Dim	Min	Max
A	9 . 8	10 . 2
B	2 . 2 5	2 . 7 5
C	2 . 9 5	3 . 4 5
D	14 . 7 5	15 . 2 5
E	3 . 5	4 . 1
F	0 . 4 5	0 . 7 5
G	0 . 4 5	0 . 7 5
H	13 . 3 5	14 . 1 5
I	4 . 9 7	5 . 2 3
J	4 . 3	4 . 8
K	2 . 5	2 . 7 4
L	2 . 5 8	2 . 8 2
M	1 . 0 3	1 . 4 3



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