



# S i l i c o n C a r b i d e S c h o t t k y D i o d e

$V_{RRM}$	650 V
$I_{F 66^\circ C}$	20 A
$Q_C$	62 nC

## Features

- Positive temperature coefficient
- Temperature-independent switching
- Maximum working temperature at 175 °C
- Unipolar device with 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.

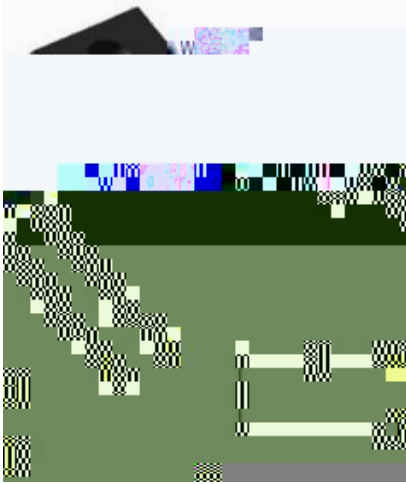
## Mechanical

Package: TO-220 AC

Molding compound meets UL 94 V-0 flammability rating, RoHS-compliant, halogen-free

Terminal: 3 plated leads

Polarity: A is 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 @ $T_J = 65^\circ C$	$I_F$	A	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 @ $T_J = 100^\circ C$	$P_{TOT}$	W	20
ft Value @ $T_C = 25^\circ C$ , $t_p = 10ms$	$f_t$	kHz	128
Operating junction and Storage Temperature range	$T_{J,STG}$	°C	-55 to +175



# YJD106520FQG2

## 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	$\mu\text{A}$	$V_R = 6.50 \text{ V}, T_J = 25^\circ \text{C}$	1	2.5
			$V_R = 6.50 \text{ V}, T_J = 175^\circ \text{C}$	5	-
Total capacitive charge	C	nC	$V_R = 4.00 \text{ V}, T_J = 25^\circ \text{C}$ $Q_C = \int I_C (V) dV$	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	-
			$V_R = 4.00 \text{ V}, f = 1 \text{ MHz}$	107	-
Capacitance Stored Energy	$g_c$	$\mu\text{J}$	$V_R = 4.00 \text{ V}$	7.8	-

## Thermal Characteristics (at 25°C unless otherwise specified)

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

## Typical Characteristics

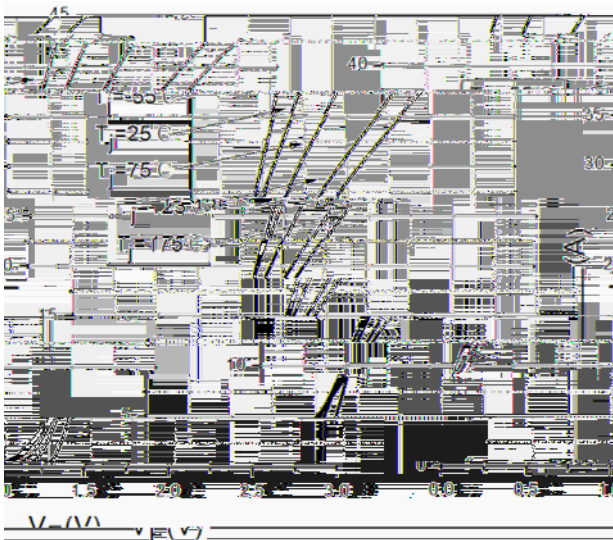


Figure 1. Forward Characteristic

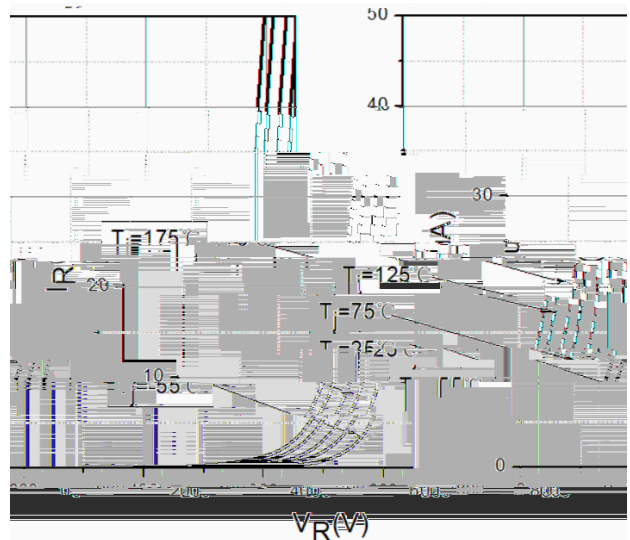


Figure 2. Reverse Characteristic

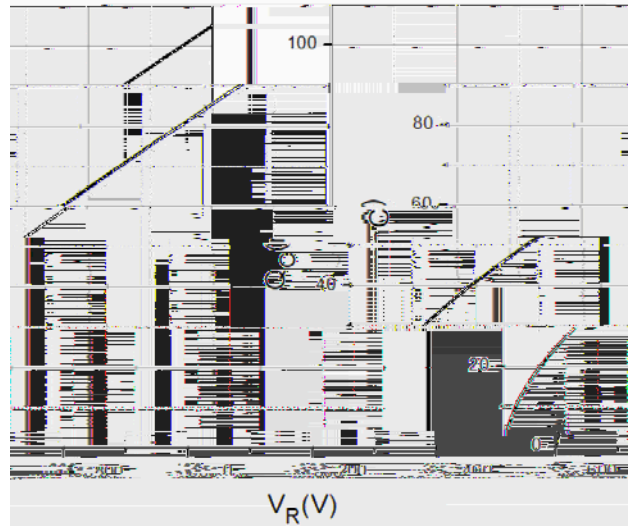
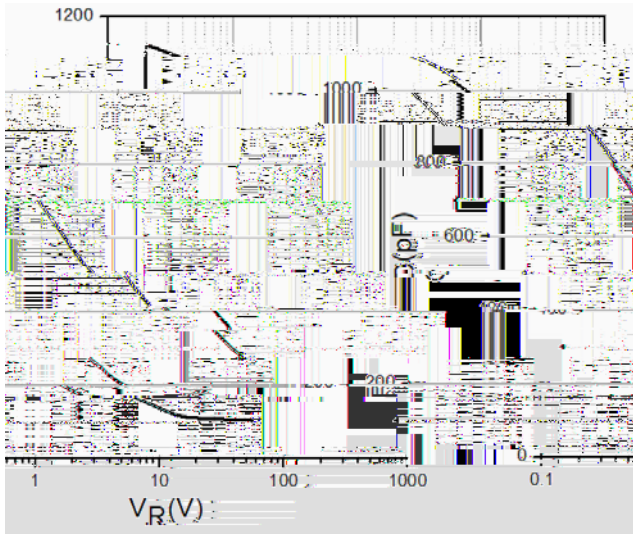


Figure 3. Capacitance vs. Reverse Voltage Figure 4. Total Capacitance Charge vs. Reverse Voltage

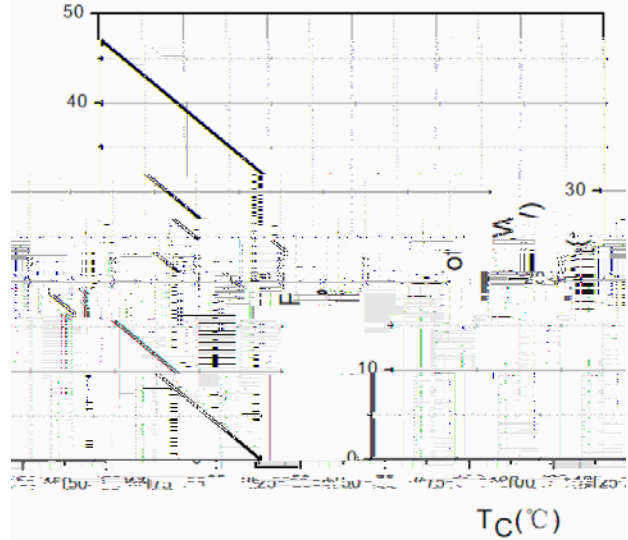
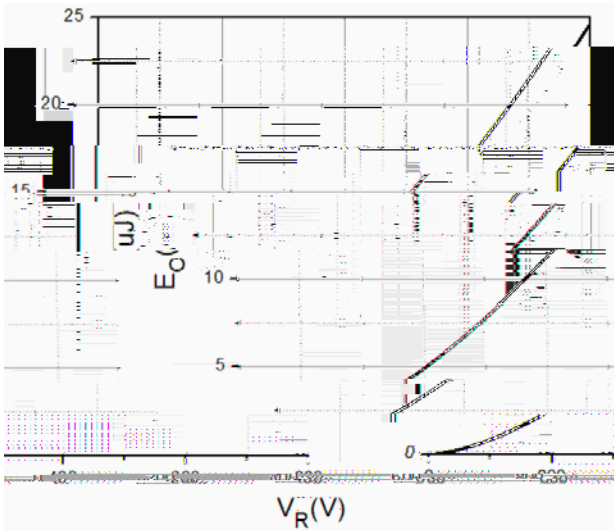


Figure 5. Capacitance Energy Storage vs. Reverse Voltage

Figure 6. Power Derating vs. Temperature

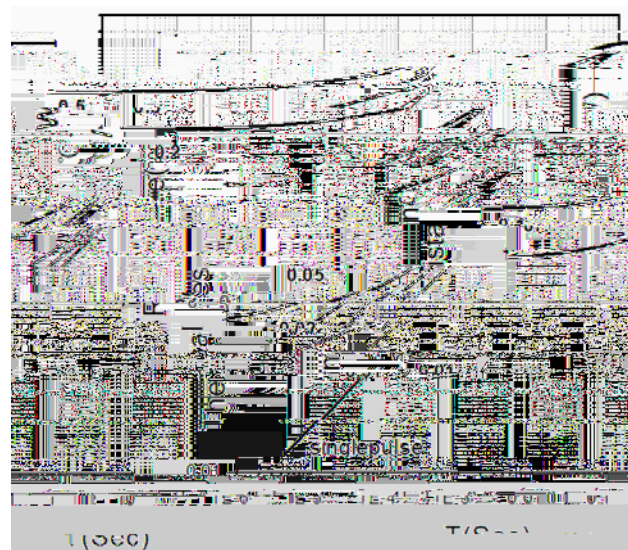
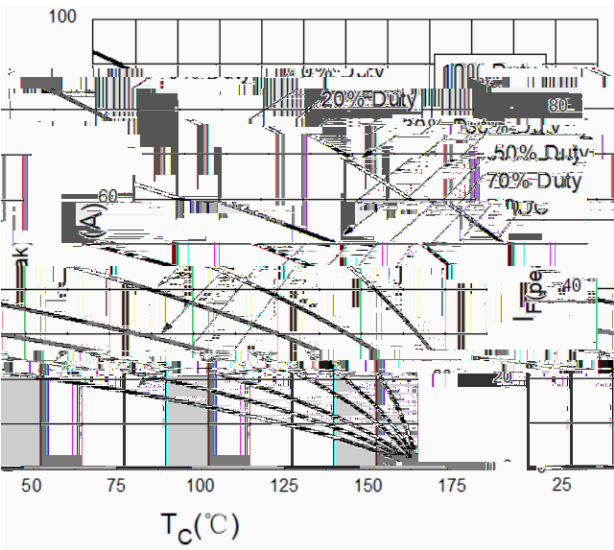


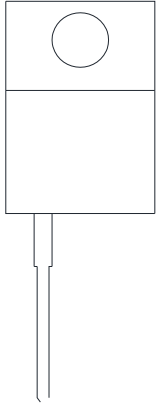
Figure 7. Current Derating vs. Temperature

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	2.25	2.75
C	2.95	3.45
D	14.75	15.25
E	3.5	4.1
F	0.45	0.75
G	0.45	0.75
H	13.35	14.15
I	4.97	5.23
J	4.3	4.8
K	2.5	2.74
L	2.58	2.82
M	1.03	1.43



## Y J D106520 F Q G 2

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