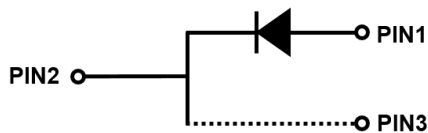
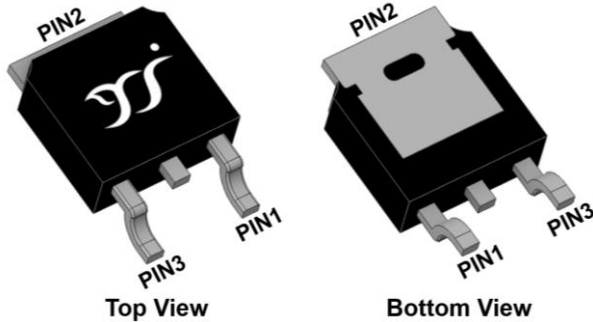


## Silicon Carbide Schottky Diode

$V_{RRM}$	650V
$I_{F(135^{\circ}C)}$	21A
$Q_C$	61nC



### Features

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

### Typical Applications

Typical applications are in power factor correction(PFC), solar inverter, uninterruptible power supply, motor drives, photovoltaic inverter, electric car and charger.

### Mechanical Data

- **Package:** TO-252  
Molding compound meets UL 94 V-0 flammability rating, RoHS-compliant, halogen-free
- **Terminals:** Tin plated leads
- **Polarity:** As marked

### ■Maximum Ratings ( $T_C=25^{\circ}C$ Unless otherwise specified)

PARAMETER	SYMBOL	UNIT	VALUE
Device marking code			D106520DXYG4
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 @ $T_C=25^{\circ}C$	$I_F$	A	48
Continuous forward current @ $T_C=135^{\circ}C$			21
Continuous forward current @ $T_C=140^{\circ}C$			20
Non-repetitive peak forward surge current @ $T_C=25^{\circ}C$ , $t_p=10ms$ , Half Sine Wave	$I_{FSM}$	A	130
Power Dissipation@ $T_C=25^{\circ}C$	$P_{TOT}$	W	150
Power Dissipation@ $T_C=110^{\circ}C$			65
$i^2t$ Value@ $T_C=25^{\circ}C$ , $t_p=10ms$	$\int i^2 dt$	A <sup>2</sup> S	84.5
Operating junction and Storage temperature range	$T_j, T_{stg}$	°C	-55 to +175



# YJD106520DXYG4

## ■Electrical Characteristics (T<sub>j</sub>=25°C Unless otherwise specified)

PARAMETER	SYMBOL	UNIT	TEST CONDITIONS	Min.	Typ.	Max.
Reverse voltage (DC)	V <sub>DC</sub>	V	I <sub>R</sub> =0.25mA, T <sub>j</sub> =25°C	650	-	-
Forward voltage	V <sub>F</sub>	V	I <sub>F</sub> =20A, T <sub>j</sub> =25°C	-	1.38	1.60
			I <sub>F</sub> =20A, T <sub>j</sub> =175°C	-	1.75	-
Reverse current	I <sub>R</sub>	μA	V <sub>R</sub> =650V, T <sub>j</sub> =25°C	-	0.5	25
			V <sub>R</sub> =650V, T <sub>j</sub> =175°C	-	5	-
Total capacitive charge	Q <sub>C</sub>	nC	V <sub>R</sub> =400V, T <sub>j</sub> =25°C , Q <sub>C</sub> =∫ <sub>0</sub> <sup>V<sub>R</sub></sup> I <sub>R</sub> (V)dV	-	61	-
Total capacitance	C	pF	V <sub>R</sub> =0V, f=1MHZ	-	1150	-
			V <sub>R</sub> =200V, f=1MHZ	-	113	-
			V <sub>R</sub> =400V, f=1MHZ	-	107	-
Capacitance stored energy	E <sub>C</sub>	μJ	V <sub>R</sub> =400V	-	9.4	-

## ■Thermal Characteristics

PARAMETER	SYMBOL	UNIT	VALUE
Thermal resistance	R <sub>θj-c</sub>	°C/W	1.0

## ■Typical Characteristics (Typical)

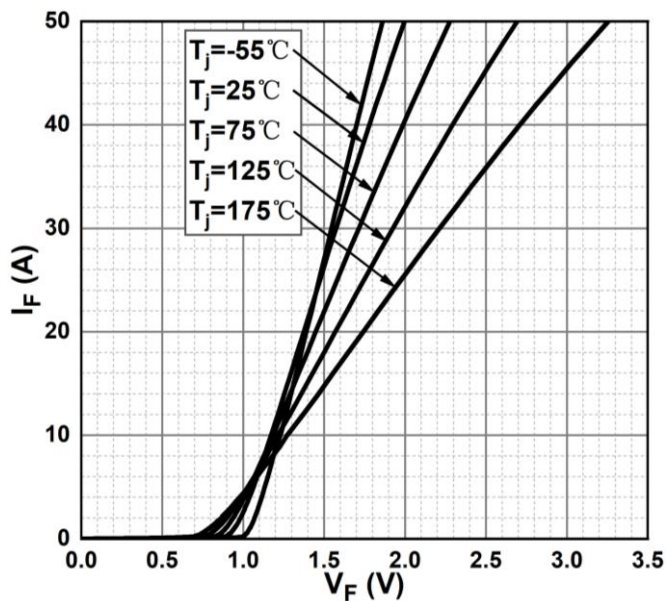


Figure 1. Forward Characteristics

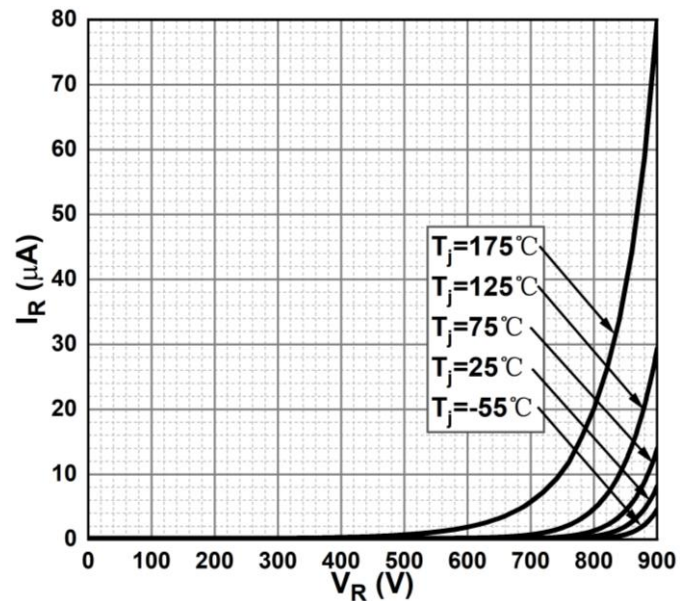


Figure 2. Reverse Characteristics



# YJD106520DXYG4

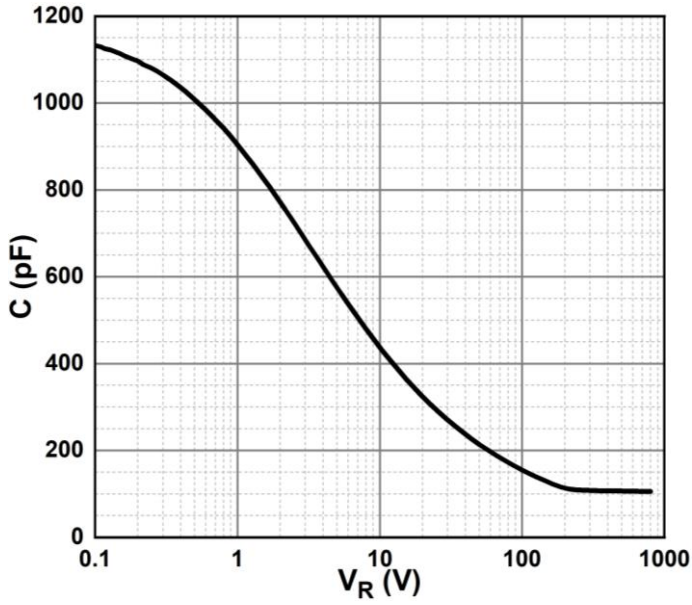


Figure 3. Capacitance vs. Reverse Voltage

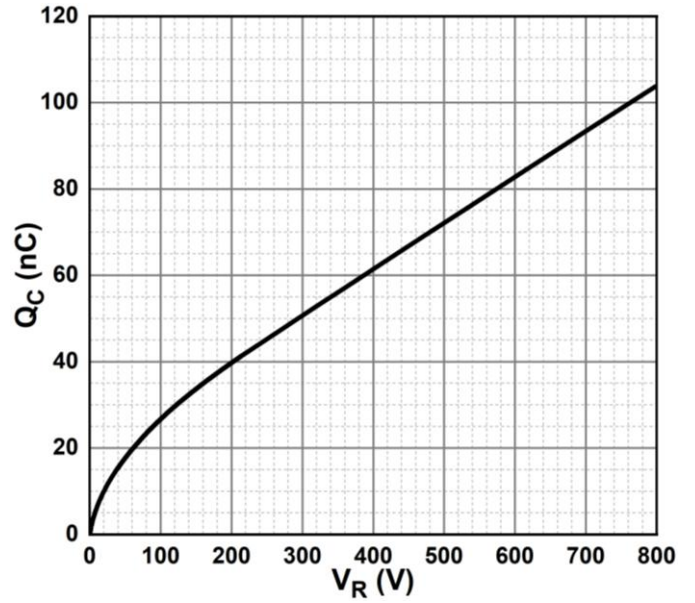


Figure 4. Total Capacitance Charge vs. Reverse Voltage

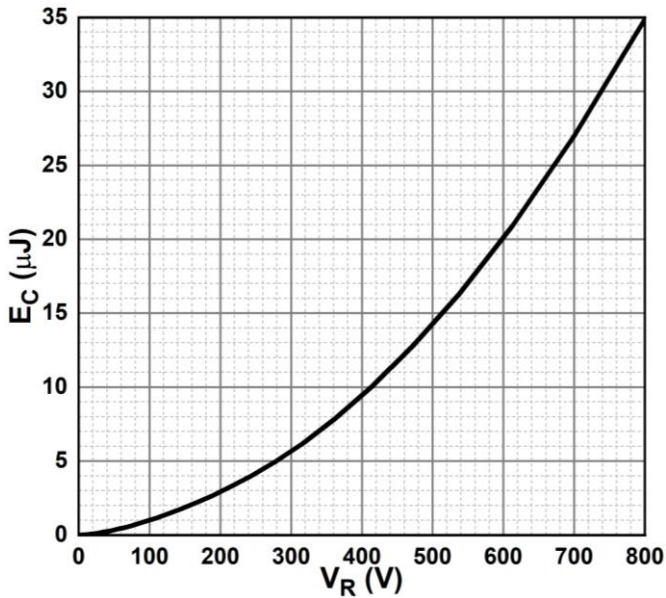


Figure 5. Capacitance Stored Energy

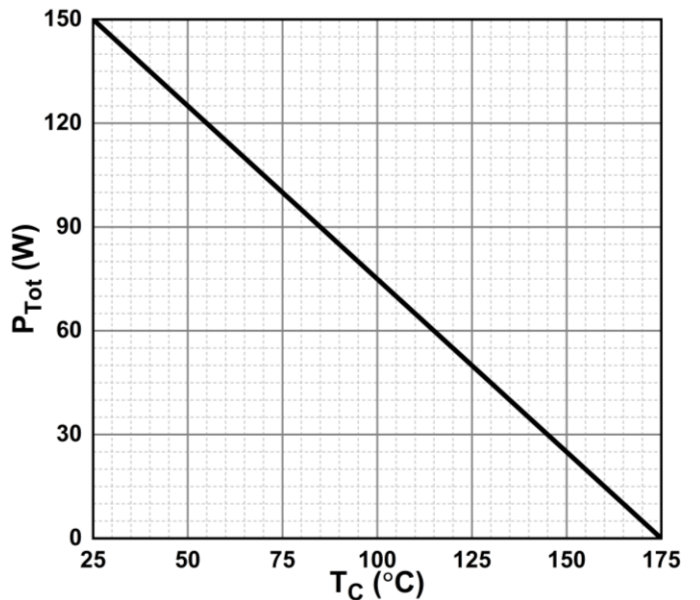


Figure 6. Power Derating

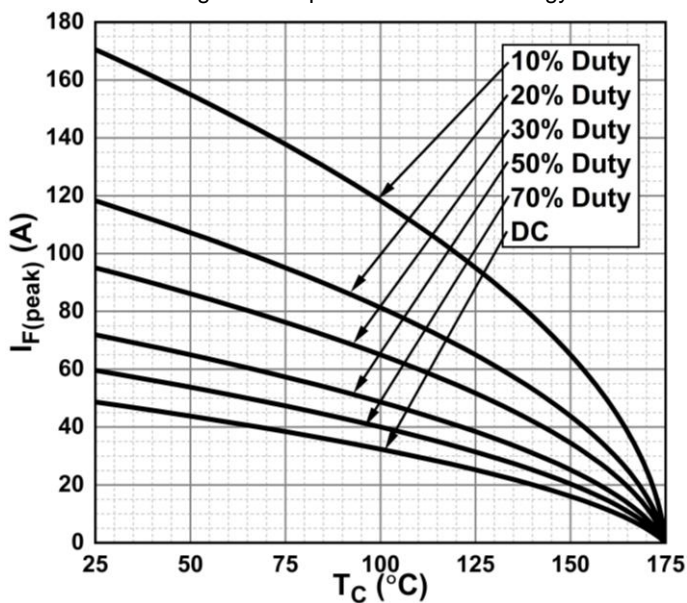


Figure 7. Current Derating

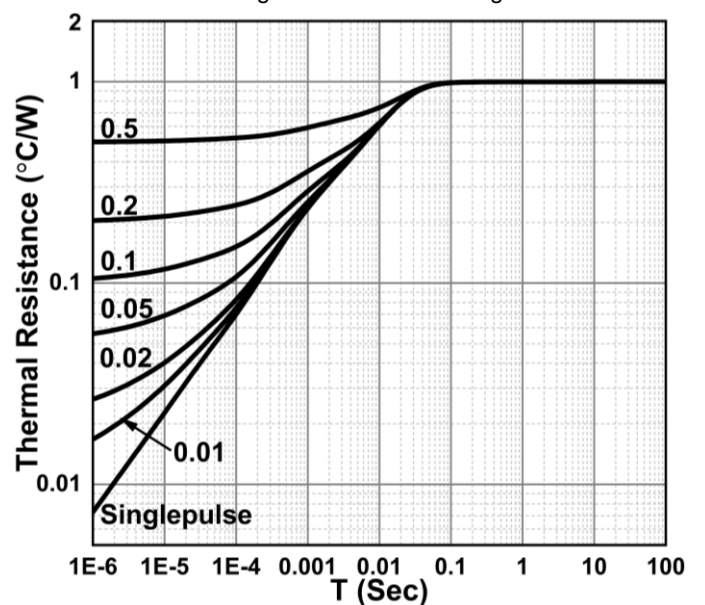
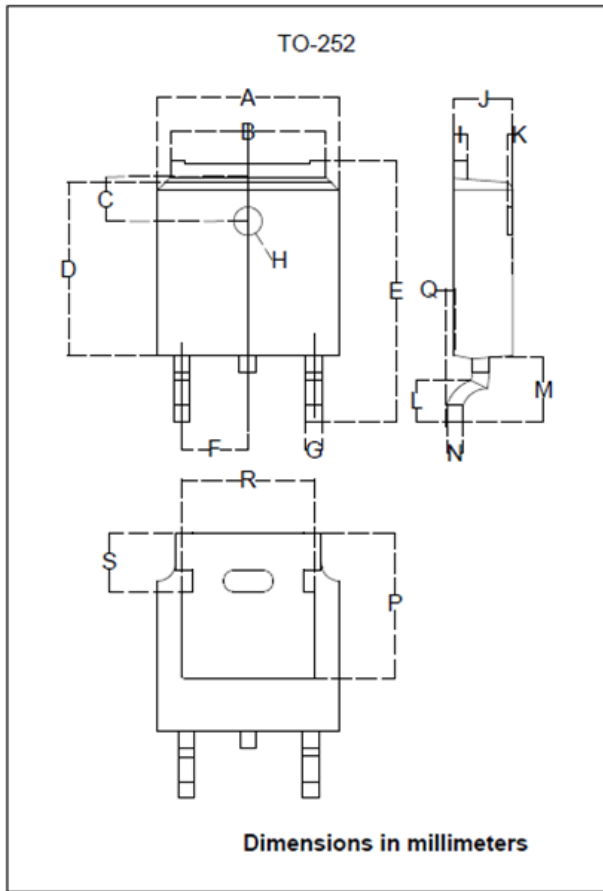


Figure 8. Transient Thermal Impedance



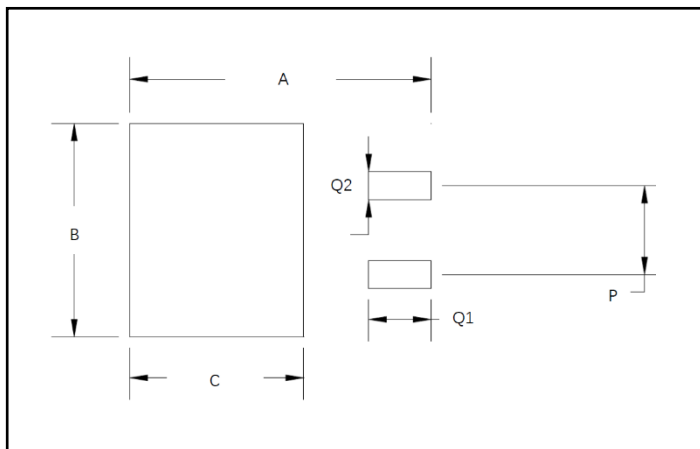
# YJD106520DXYG4

## ■Outline Dimensions



TO-252		
Dim	Min	Max
A	6.500	6.700
B	5.100	5.460
C	1.400	1.800
D	6.000	6.200
E	10.000	10.400
F	2.166	2.366
G	0.660	0.860
H	Φ1.050	Φ1.350
I	0.460	0.580
J	2.200	2.400
K	0	0.300
L	0.890	2.290
M	2.730	3.080
N	0.430	0.580
P	5.15	5.45
Q	0	0.2
R	4.50	5.10
S	1.60	2.40

## ■Suggested Pad Layout



Dim	Millimeters
A	11.4
B	6.74
C	6.23
P	4.56
Q1	2.28
Q2	1.52



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