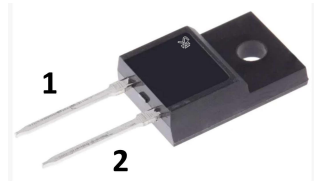
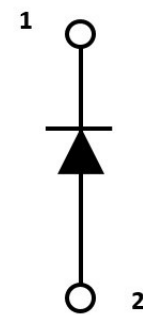


## Silicon Carbide Schottky Barrier Diode

1200V, 5A SiC SBD

General Description		
<p>The Q-SSC05120-T uses a completely new technology and designs to provide superior switching performances and higher reliability. This device is suitable for use in solar inverter, renewable energy applications, uninterruptible power supply (UPS), and general purpose applications.</p>		
Product Summary		TO-220AC
$V_{RRM}$	1200	V
$I_F @ T_C=141^{\circ}C$	5	A
$Q_C @ V_R=800V$	24	nC
$E_C @ V_R=800V$	12.4	$\mu J$
Features		
<ul style="list-style-type: none"> <li>• Temperature independent switching behavior</li> <li>• No reverse recovery current / No forward recovery</li> <li>• Excellent thermal performances</li> <li>• High surge current capability</li> </ul>		
Applications		
<ul style="list-style-type: none"> <li>• Solar inverter / Renewable energy applications</li> <li>• Uninterruptible power supply</li> <li>• Power factor correction</li> <li>• Motor drives</li> </ul>		

### Maximum Ratings ( $T_A=25^{\circ}C$ unless otherwise noted)

Parameter	Symbol	Value	Unit
Repetitive Peak Reverse Voltage	$V_{RRM}$	1200	V
Continuous Forward Current, $D=1$	$T_C=25^{\circ}C$	17.7	A
	$T_C=141^{\circ}C$	5	
Non-Repetitive Peak Forward Surge Current, Half Sine Wave, 10ms	$T_C=25^{\circ}C$	51	A
	$T_C=150^{\circ}C$	42.5	
$i^2t$ Value, 10ms	$\int i^2 dt$	13	A
Non-Repetitive Peak Forward Current, 10us	$I_{F,max}$	306	A
Power Dissipation	$P_D$	90.8	W
Storage Temperature Range	$T_{STG}$	-55 to 150 $^{\circ}C$	$^{\circ}C$
Operating Junction Temperature Range	$T_J$	-55 to 175 $^{\circ}C$	$^{\circ}C$

## Thermal Characteristics

Parameter	Symbol	Conditions	Min.	Typ	Max	Unit
Maximum Junction-to-Ambient <sup>1</sup>	R <sub>thJA</sub>	TO-220AC	-	1.18	1.65	°C/W
Maximum Junction-to-Case <sup>1</sup>	R <sub>thJC</sub>	TO-220AC	-	-	60	°C/W

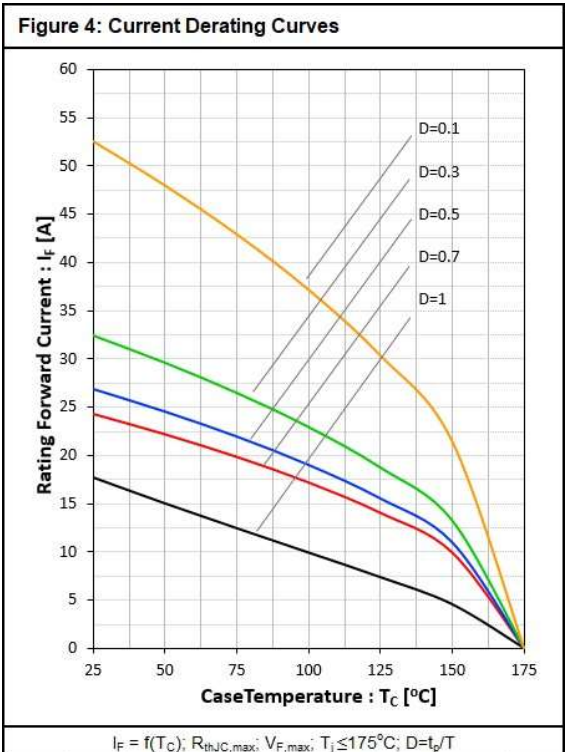
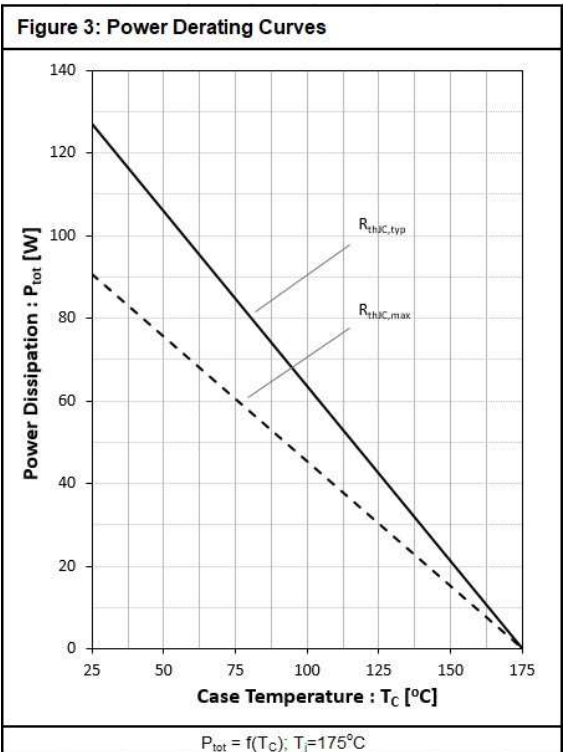
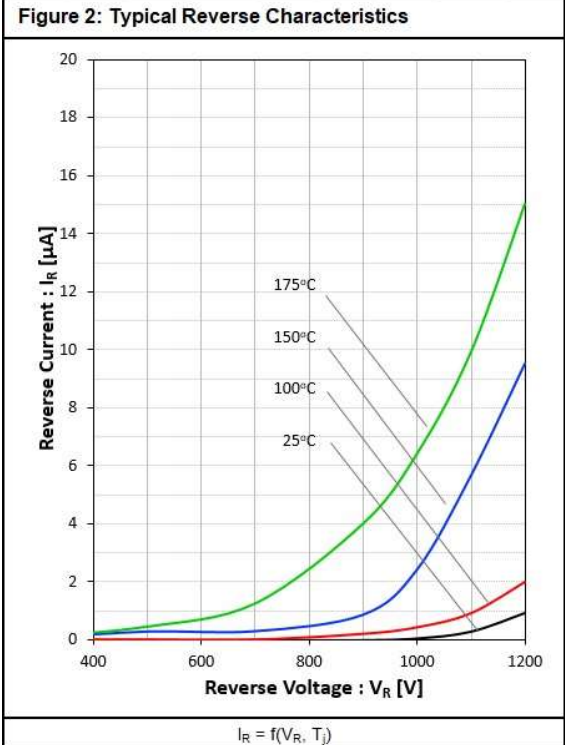
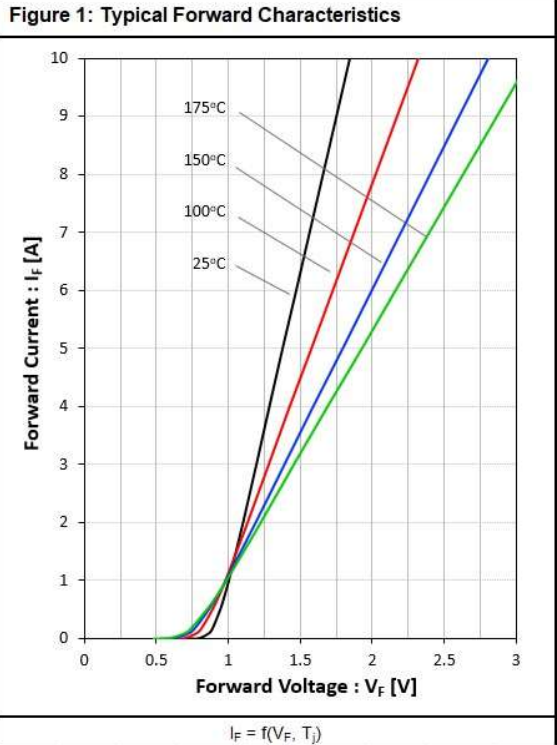
## Electrical Characteristics (T<sub>A</sub>=25°C unless otherwise noted)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
<b>STATIC CHARACTERISTICS</b>						
DC Blocking Voltage	V <sub>R</sub>	I <sub>R</sub> =100uA, T <sub>j</sub> =25°C	1200	-	-	V
		I <sub>R</sub> =100uA, T <sub>j</sub> =175°C	1200	-	-	
Forward Voltage	V <sub>F</sub>	I <sub>F</sub> =5A, T <sub>j</sub> =25°C	-	1.4	1.8	V
		I <sub>F</sub> =5A, T <sub>j</sub> =150°C	-	1.8	2.2	
		I <sub>F</sub> =5A, T <sub>j</sub> =175°C	-	1.9	2.4	
Reverse Current	I <sub>R</sub>	V <sub>R</sub> =1200V, T <sub>j</sub> =25°C	-	1	50	μA
		V <sub>R</sub> =1200V, T <sub>j</sub> =150°C	-	10	100	
		V <sub>R</sub> =1200V, T <sub>j</sub> =175°C	-	15	200	
<b>DYNAMIC CHARACTERISTICS</b>						
Total Capacitive Charge	Q <sub>C</sub>	V <sub>R</sub> =800V, T <sub>j</sub> =25°C $Q_C = \int_0^{V_R} C(V)dV$	-	24	-	nC
Total Capacitance	C	V <sub>R</sub> =0.1V, f=1MHz, T <sub>j</sub> =25°C	-	385	-	pF
		V <sub>R</sub> =400V, f=1MHz, T <sub>j</sub> =25°C	-	26	-	
		V <sub>R</sub> =800V, f=1MHz, T <sub>j</sub> =25°C	-	19	-	
Capacitance Stored Energy	E <sub>C</sub>	V <sub>R</sub> =800V, f=1MHz, T <sub>j</sub> =25°C	-	12.4	-	μJ

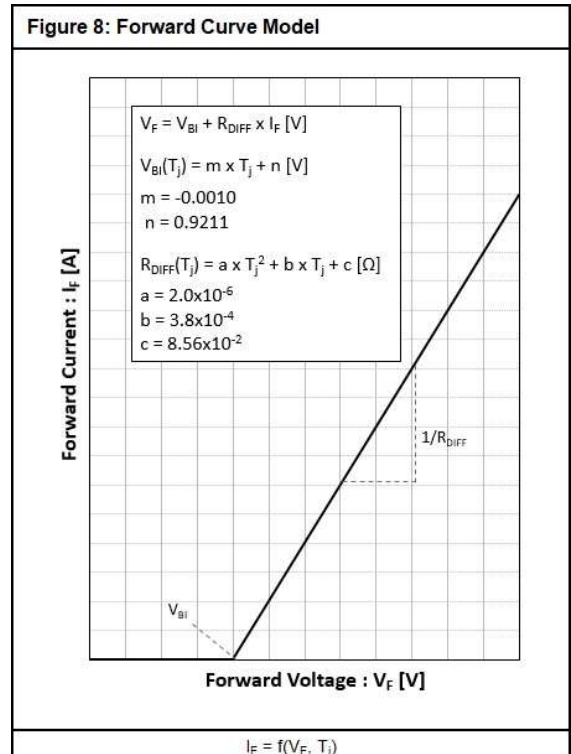
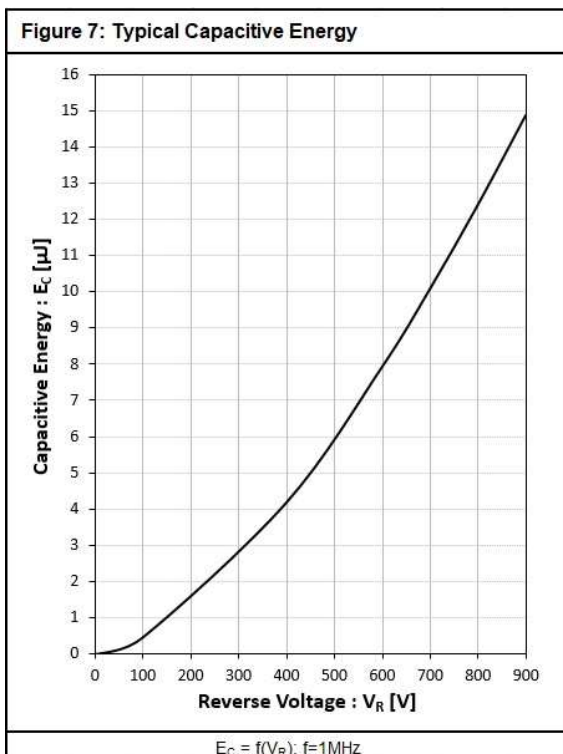
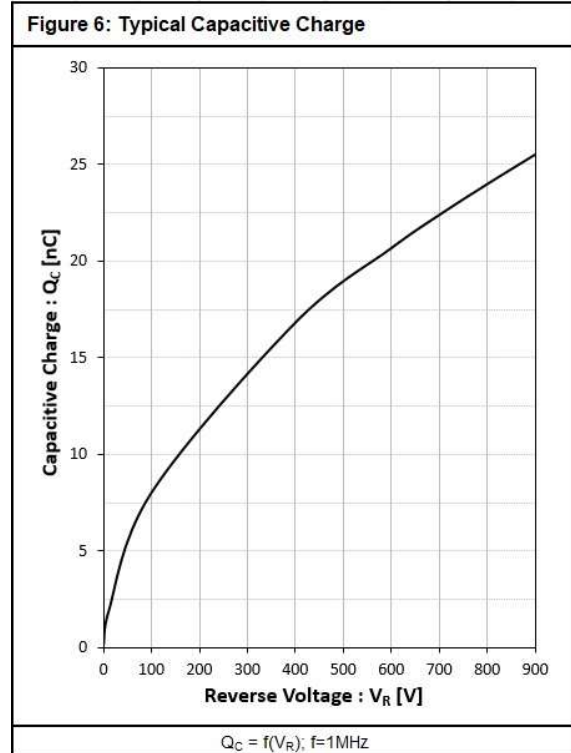
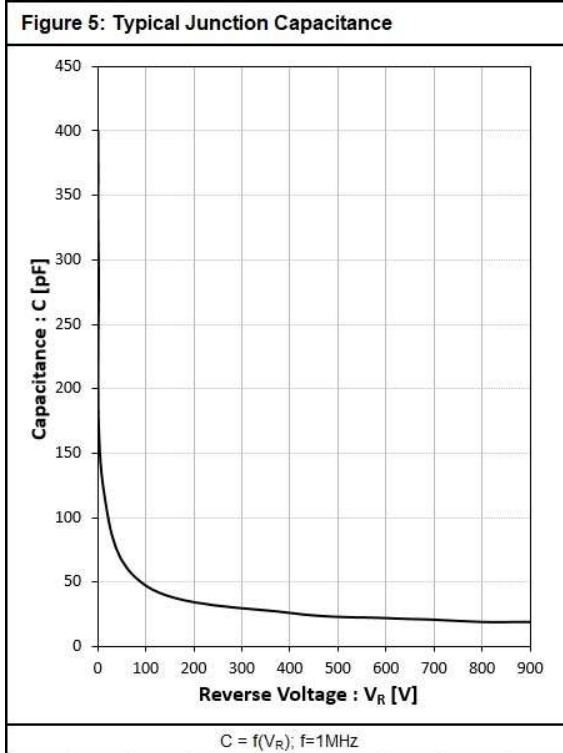
### Notes:

- Heat sink size: 25 x 17 x 4 cm<sup>3</sup>
- Pulse Test: Pulse Width ≤ 300μs, Duty Cycle ≤ 2%.
- The power dissipation is limited by 175°C junction temperature.
- The data is theoretically the same as I<sub>F</sub> and I<sub>FSM</sub> in real applications, should be limited by total power dissipation.

## Typical Operating Characteristics



Typical Operating Characteristics (Cont.)



**PACKAGE OUTLINE DIMENSIONS** in inches (millimeters)

## TO-220AC

