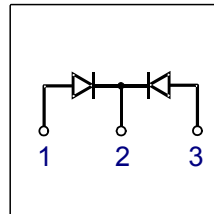


**Silicon Carbide Schottky Diode**

- Revolutionary semiconductor material - Silicon Carbide
- Switching behavior benchmark
- No reverse recovery
- No temperature influence on the switching behavior
- No forward recovery

**thinQ!<sup>TM</sup> SiC Schottky Diode**

**Product Summary**

$V_{RRM}$	300	V
$Q_C$	23	nC
$I_F$	2x10	A

**PG-TO263**


Type	Package	Ordering Code	Marking
SDB20S30	PG-TO263	Q67040-S4374	S20S30

**Maximum Ratings, at  $T_j = 25\text{ }^\circ\text{C}$ , unless otherwise specified (per leg)**

Parameter	Symbol	Value	Unit
Continuous forward current, $T_C=100^\circ\text{C}$	$I_F$	10	A
RMS forward current, $f=50\text{Hz}$	$I_{FRMS}$	14	
Surge non repetitive forward current, sine halfwave $T_C=25^\circ\text{C}$ , $t_p=10\text{ms}$	$I_{FSM}$	36	
Repetitive peak forward current $T_j=150^\circ\text{C}$ , $T_C=100^\circ\text{C}$ , $D=0.1$	$I_{FRM}$	45	
Non repetitive peak forward current $t_p=10\mu\text{s}$ , $T_C=25^\circ\text{C}$	$I_{FMAX}$	100	
$i^2t$ value, $T_C=25^\circ\text{C}$ , $t_p=10\text{ms}$	$\int i^2 dt$	6.5	$\text{A}^2\text{s}$
Repetitive peak reverse voltage	$V_{RRM}$	300	V
Surge peak reverse voltage	$V_{RSM}$	300	
Power dissipation, single diode mode, $T_C=25^\circ\text{C}$	$P_{tot}$	65	W
Operating and storage temperature	$T_j, T_{stg}$	-55... +175	$^\circ\text{C}$

**Thermal Characteristics**

Parameter	Symbol	Values			Unit
		min.	typ.	max.	
<b>Characteristics</b>					
Thermal resistance, junction - case (per leg)	$R_{thJC}$	-	-	2.3	K/W
SMD version, device on PCB:	$R_{thJA}$	-	-	62	
@ min. footprint P-T0263-3-2: @ 6 cm <sup>2</sup> cooling area <sup>1)</sup>		-	35	-	

**Electrical Characteristics**, at  $T_j = 25\text{ }^\circ\text{C}$ , unless otherwise specified (per leg)

Parameter	Symbol	Values			Unit
		min.	typ.	max.	
<b>Static Characteristics</b>					
Diode forward voltage	$V_F$	-	1.5	1.7	V
$I_F=10\text{A}$ , $T_j=25\text{ }^\circ\text{C}$		-	1.5	1.9	
Reverse current	$I_R$	-	15	200	$\mu\text{A}$
$V_R=300\text{V}$ , $T_j=25\text{ }^\circ\text{C}$		-	20	1000	

<sup>1</sup>Device on 40mm\*40mm\*1.5mm epoxy PCB FR4 with 6cm<sup>2</sup> (one layer, 70  $\mu\text{m}$  thick) copper area for drain connection. PCB is vertical without blown air.

**Electrical Characteristics, at  $T_j = 25\text{ °C}$ , unless otherwise specified (per leg)**

Parameter	Symbol	Values			Unit
		min.	typ.	max.	
<b>AC Characteristics</b>					
Total capacitive charge <sup>1)</sup> $V_R=200\text{V}$ , $I_F=10\text{A}$ , $di_F/dt=-200\text{A}/\mu\text{s}$ , $T_j=150\text{°C}$	$Q_C$	-	23	-	nC
Switching time <sup>2)</sup> $V_R=200\text{V}$ , $I_F=10\text{A}$ , $di_F/dt=-200\text{A}/\mu\text{s}$ , $T_j=150\text{°C}$	$t_{rr}$	-	n.a.	-	ns
Total capacitance $V_R=0\text{V}$ , $T_C=25\text{°C}$ , $f=1\text{MHz}$ $V_R=150\text{V}$ , $T_C=25\text{°C}$ , $f=1\text{MHz}$ $V_R=300\text{V}$ , $T_C=25\text{°C}$ , $f=1\text{MHz}$	$C$	-	600 55 40	-	pF









