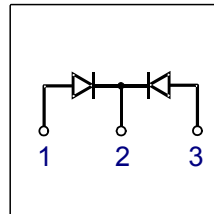
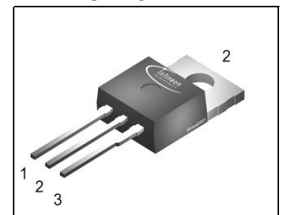


Silicon Carbide Schottky Diode

- Revolutionary semiconductor material - Silicon Carbide
- Switching behavior benchmark
- No reverse recovery
- No temperature influence on the switching behavior
- No forward recovery
- Pb-free lead plating; RoHS compliant
- Qualified according to JEDEC⁰⁾ for target applications

thinQ!TM SiC Schottky Diode

Product Summary

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

P-TO220


Type	Package	Ordering Code	Marking
SDP20S30	P-TO220-3	Q67040-S4419	D20S30

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

Parameter	Symbol	Value	Unit
Continuous forward current, $T_C=100\text{ }^\circ\text{C}$	I_F	10	A
RMS forward current, $f=50\text{Hz}$	I_{FRMS}	14	
Surge non repetitive forward current, sine halfwave $T_C=25\text{ }^\circ\text{C}$, $t_p=10\text{ms}$	I_{FSM}	36	
Repetitive peak forward current $T_j=150\text{ }^\circ\text{C}$, $T_C=100\text{ }^\circ\text{C}$, $D=0.1$	I_{FRM}	45	
Non repetitive peak forward current $t_p=10\mu\text{s}$, $T_C=25\text{ }^\circ\text{C}$	I_{FMAX}	100	
i^2t value, $T_C=25\text{ }^\circ\text{C}$, $t_p=10\text{ms}$	$\int i^2 dt$	6.5	A ² s
Repetitive peak reverse voltage	V_{RRM}	300	V
Surge peak reverse voltage	V_{RSM}	300	
Power dissipation, single diode mode, $T_C=25\text{ }^\circ\text{C}$	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.	
Characteristics					
Thermal resistance, junction - case (per leg)	R_{thJC}	-	-	2.3	K/W

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

Parameter	Symbol	Values			Unit
		min.	typ.	max.	
Static Characteristics					
Diode forward voltage	V_F				V
$I_F=10\text{A}, T_j=25^\circ\text{C}$		-	1.5	1.7	
$I_F=10\text{A}, T_j=150^\circ\text{C}$		-	1.5	1.9	
Reverse current	I_R				μA
$V_R=300\text{V}, T_j=25^\circ\text{C}$		-	15	200	
$V_R=300\text{V}, T_j=150^\circ\text{C}$		-	20	1000	

⁰J-STD20 and JESD22

¹Device on 40mm*40mm*1.5mm epoxy PCB FR4 with 6cm² (one layer, 70 μm 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.	
AC Characteristics					
Total capacitive charge ¹⁾ $V_R=200\text{V}$, $I_F=10\text{A}$, $di_F/dt=-200\text{A}/\mu\text{s}$, $T_j=150\text{°C}$	Q_C	-	23	-	nC
Switching time ²⁾ $V_R=200\text{V}$, $I_F=10\text{A}$, $di_F/dt=-200\text{A}/\mu\text{s}$, $T_j=150\text{°C}$	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

