

20A 1200V Silicon Carbide Schottky Diode
SRD20V120E
General Description

The SRD20V120E is a Silicon Carbide Schottky Diode, which offers ultra low I_R and low V_F for high frequency applications such as PFC, Power Supply, Inverter, etc.

The SRD20V120E package is TO-247-2.

Features

- Zero Reverse Recovery Current
- Zero Forward Recovery Voltage
- Positive Temperature Coefficient on V_F
- Temperature-independent Switching
- 175°C Operating Junction Temperature

Application

- Switch Mode Power Supplies
- Motor Driver, PV Inverter
- PFC Application
- High Frequency Operation
- Non-Automotive Qualified

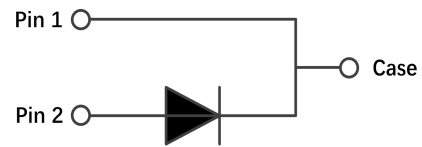
Symbol


Figure 1 Symbol of SRD20V120E

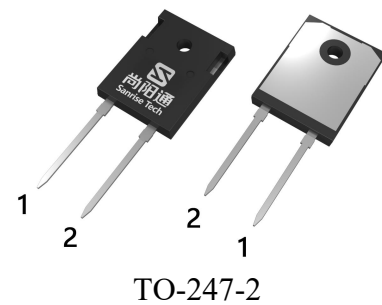
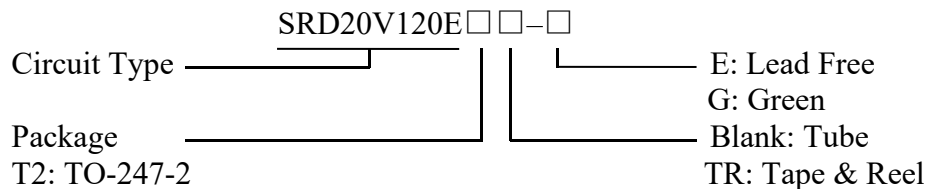
Package Type


Figure 2 Package Type of SRD20V120E

Ordering Information


Package	Part Number	Marking ID	Packing Type
TO-247-2	SRD20V120ET2-G	SRD20V120ET2G	Tube

Absolute Maximum Ratings

Parameter	Test Conditions	Symbol	Value	Unit
Repetitive Peak Reverse Voltage		V_{RRM}	1200	V
Surge Peak Reverse Voltage		V_{RSM}	1200	V
Forward Current	$T_C \leq 150^\circ\text{C}$	I_F	20	A
Non-Repetitive Forward Surge Current	$t_p=10\text{ms}$, Half Sine Wave	I_{FSM}	150	A
	$T_C=110^\circ\text{C}$		140	
Power Dissipation		P_{tot}	187	W
i^2t value	$t_p=10\text{ms}$	$\int i^2 dt$	112	A^2S
	$T_C=110^\circ\text{C}$		98	
Operating Junction Temperature	-	T_J	-55 ~ 175	$^\circ\text{C}$
Storage Temperature	-	T_{STG}	-55 ~ 150	$^\circ\text{C}$
Soldering Temperature	-	T_{sold}	260	$^\circ\text{C}$
Single Pulse Avalanche Energy	$L=2\text{mH}$, $I_{AS}=10\text{A}$ $V_{R(\text{peak})}>1500\text{V}$	EAS	100	mJ

Note:

 $T_C = 25^\circ\text{C}$ unless otherwise specified

Thermal Resistance

Parameter	Symbol	Min	Typ.	Max	Unit
Thermal Resistance, Junction-to-Case	R_{thJC}	-	0.68	0.8	$^\circ\text{C}/\text{W}$
Thermal Resistance, Junction-to-Ambient	R_{thJA}	-	-	62	

Electrical Characteristics

Parameter	Symbol	Test Conditions	Min	Typ.	Max	Unit
DC Blocking Voltage	V_{DC}	$I_R=250\mu A$	1200	-	-	V
Forward Voltage	V_F	$I_F=20A$	-	1.5	1.8	V
		$I_F=20A, T_J=175^\circ C$	-	2.25		
Reverse Current	I_R	$V_R=1200V$	-	10	80	μA
		$V_R=1200V, T_J=175^\circ C$	-	33		
Total Capacitance	C	$V_R=1V, f=100kHz$	-	1430	-	pF
		$V_R=400V, f=100kHz$	-	86	-	
		$V_R=800V, f=100kHz$	-	70	-	
Total Capacitive Charge	Q_C	$V_R=800V, I_F=20A$ $dI_F/dt=140A/\mu s$	-	90	-	nC

Note:

 $T_J=25^\circ C$ unless otherwise specified



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