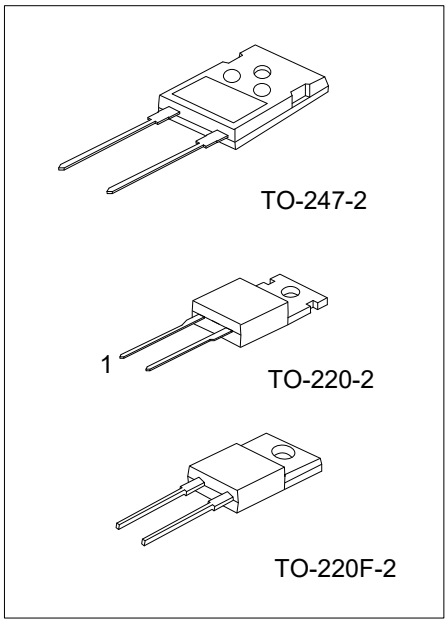
UCBD20120SA

SiC-SBD DIODE

SILICON CARBIDE SCHOTTKY BARRIER DIODES



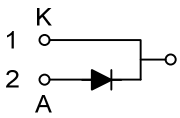
■ DESCRIPTION

The **UCBD20120SA** is an SiC Schottky barrier diodes (SBDs) feature high reverse voltage ratings. In addition to SBDs with short reverse recovery time (trr), provides 1200V SBDs with a junction barrier Schottky (JBS) structure that provide low leakage current (Ir) and high surge current capability required for switched-mode power supplies. These devices help improve the efficiency of switched-mode power supplies.

■ FEATURES

* Zero Reverse Recovery Current
* Humidity Resistant
* High Frequency Operation
* Temperature-Independent Switching Behavior

■ SYMBOL



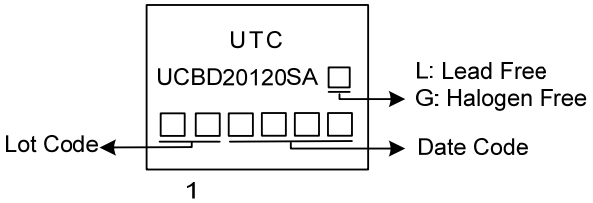
■ ORDERING INFORMATION

Ordering Number		Package	Pin Assignment		Packing
Lead Free	Halogen Free		1	2	
UCBD20120SAL-TA2-T	UCBD20120SAG-TA2-T	TO-220-2	K	A	Tube
UCBD20120SAL-TF32-T	UCBD20120SAG-TF32-T	TO-220F-2	K	A	Tube
UCBD20120SAL-T472-T	UCBD20120SAG-T472-T	TO-247-2	K	A	Tube

Note: Pin Assignment: K: Cathode A: Anode

UCBD20120SAG-TA2-T (1)Packing Type (2)Package Type (3)Green Package	(1) T: Tube (2) TA2: TO-220-2, TF32: TO-220F-2, T472: TO-247-2 (3) G: Halogen Free and Lead Free, L: Lead Free

■ MARKING



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■ ABSOLUTE MAXIMUM RATINGS (T_C=25°C, unless otherwise specified)

Ratings at 25°C ambient temperature unless otherwise specified. Resistive or inductive load, 60Hz.

PARAMETER		SYMBOL	RATINGS	UNIT
Repetitive Peak Reverse Voltage		V_{RRM}	1200	V
Surge Peak Reverse Voltage		V_{RSM}	1200	V
DC Blocking Voltage		V_R	1200	V
Continuous Forward Current	T_C=25°C	I_F	52	A
	T_C=135°C		27	A
	T_C=152°C		20	A
Repetitive Peak Forward Surge Current	T_J=25°C t_P=10ms, Half Sine Wave	I_{FRM}	162	A
Non-Repetitive Peak Forward Surge Current	T_J=25°C t_P=10ms, Half Sine Wave	I_{FSM}	181	A
	T_J=110°C t_P=10ms, Half Sine Wave		172	A
Power Dissipation	TO-220-2	P_D	200	W
	TO-220F-2		167	W
	TO-247-2		217	W
Operating Junction Temperature		T_J	-55 ~ +175	°C
Storage Temperature Range		T_{STG}	-55 ~ +175	°C

Note: Absolute maximum ratings are those values beyond which the device could be permanently damaged. Absolute maximum ratings are stress ratings only and functional device operation is not implied.

■ THERMAL DATA

PARAMETER		SYMBOL	RATINGS	UNIT
Junction to Case	TO-220-2	θ_{JC}	0.75	°C/W
	TO-220F-2		0.9	°C/W
	TO-247-2		0.69	°C/W

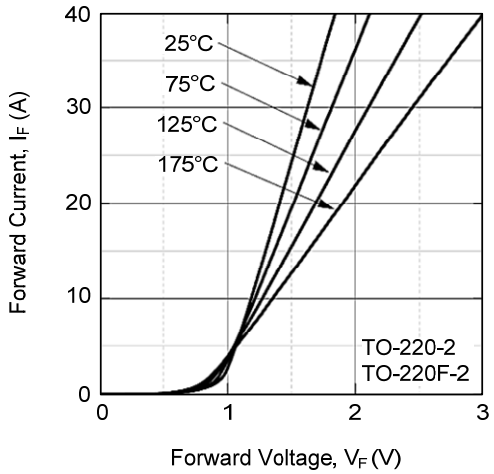
■ ELECTRICAL CHARACTERISTICS

(Ratings at 25°C ambient temperature unless otherwise specified. Resistive or inductive load, 60Hz)

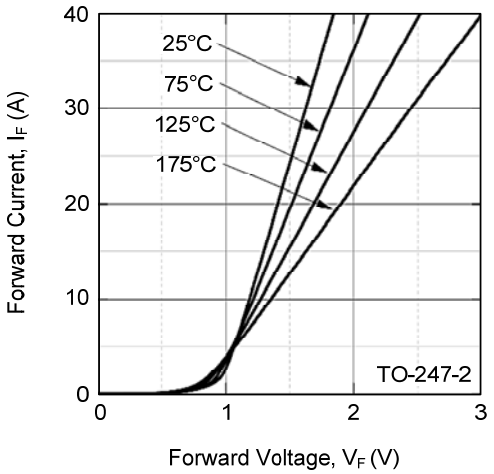
PARAMETER		SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
DC Blocking Voltage		V_{DC}	T_C=25°C	1200			V
Forward Voltage	TO-220-2 TO-220F-2 TO-247-2	V_F	I_F=10A, T_J=25°C		1.19		V
	TO-220-2		I_F=20A, T_J=25°C		1.41	1.60	V
	TO-220F-2				1.41	1.65	V
	TO-247-2				1.40	1.60	V
	TO-220-2 TO-220F-2		I_F=20A, T_J=175°C		1.68		V
	TO-247-2				1.67		V
Reverse Current		I_R	V_R=1200V, T_J=25°C		1.0	100	μA
			V_R=1200V, T_J=175°C		10		μA
Total Capacitive Charge		Q_C	V_R=800V		120		nC
Total Capacitance		C	V_R=1.0V, f=1MHz		1193		pF
			V_R=400V, f=1MHz		104		pF
			V_R=800V, f=1MHz		83		pF
Capacitance Stored Energy		E_C	V_R=800V		26		μJ

■ TYPICAL CHARACTERISTICS

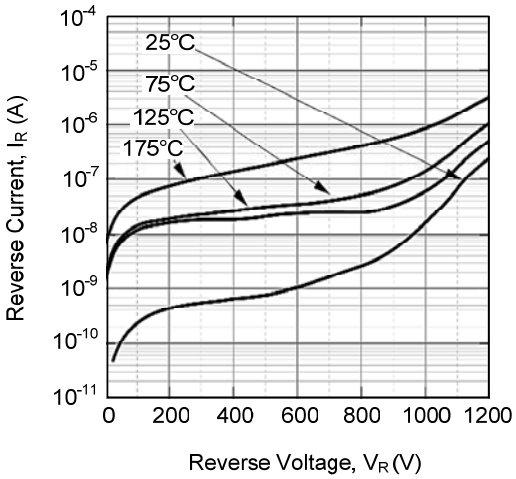
Forward Characteristics



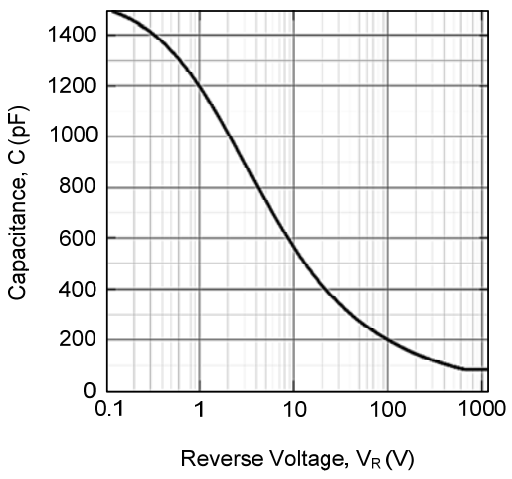
Forward Characteristics



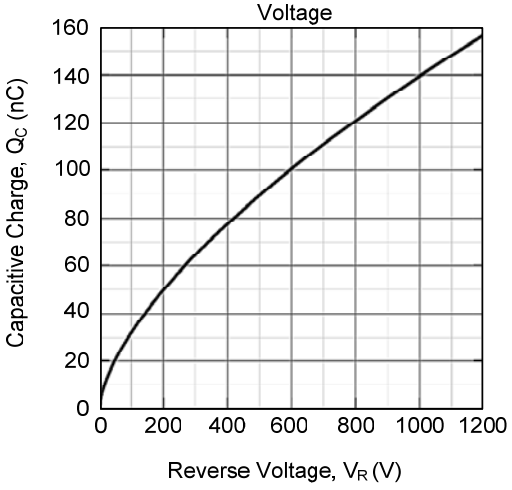
Reverse Characteristics



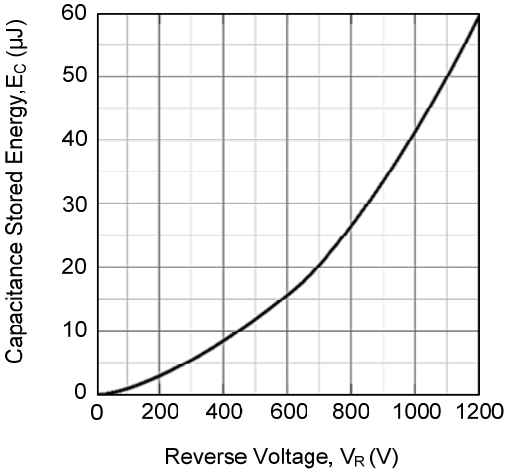
Capacitance vs. Reverse Voltage



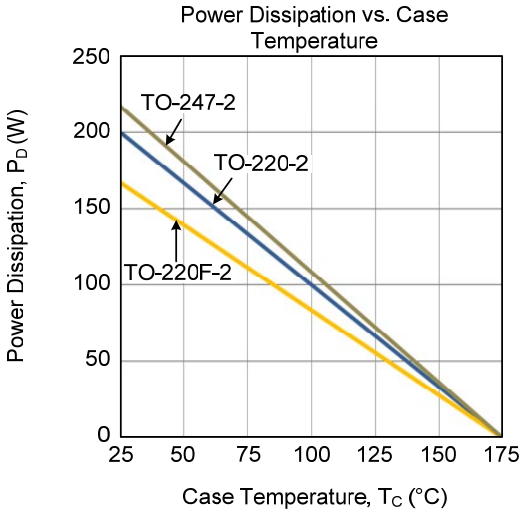
Capacitive Charge vs. Reverse Voltage

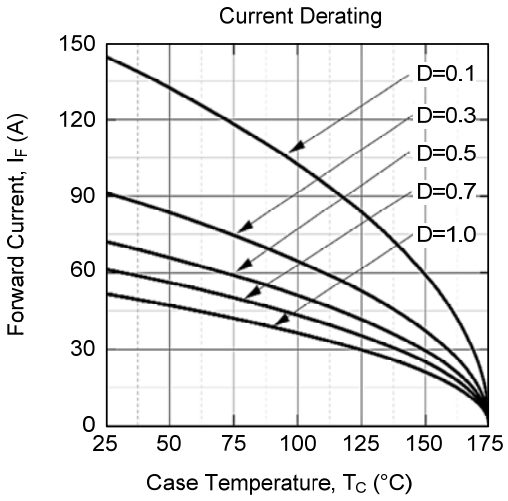


Capacitance Stored Energy



■ TYPICAL CHARACTERISTICS (Cont.)





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