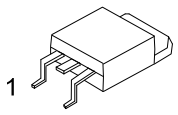
UCBD05120SA

SiC-SBD DIODE

SILICON CARBIDE SCHOTTKY BARRIER DIODES



TO-252

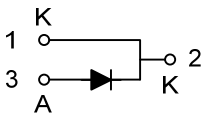
■ DESCRIPTION

The **UCBD05120SA** 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

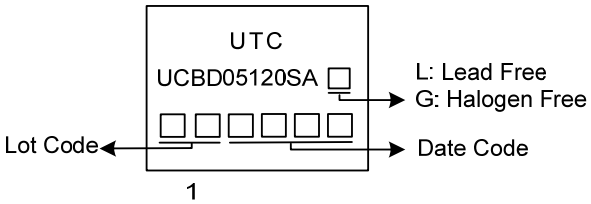
Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
UCBD05120SAL-TN3-R	UCBD05120SAG-TN3-R	TO-252	K	K	A	Tape Reel

Note: Pin Assignment: K: Cathode A: Anode

UCBD05120SAG-TN3-R

(1)Packing Type	(1) R: Tape Reel
(2)Package Type	(2) TN3: TO-252
(3)Green Package	(3) G: Halogen Free and Lead Free, L: Lead Free

■ MARKING



■ 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	14	A
	T_C=135°C		7	A
	T_C=159°C		5	A
Repetitive Peak Forward Surge Current	T_J=25°C t_P=10ms, Half Sine Wave	I_{FRM}	39	A
Non-Repetitive Peak Forward Surge Current	T_J=25°C t_P=10ms, Half Sine Wave	I_{FSM}	45	A
	T_J=110°C t_P=10ms, Half Sine Wave		40	A
Power Dissipation	T_C=25°C	P_D	385	W
	T_C=110°C		167	W
	T_C=150°C		64	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	θ_{JC}	0.39	°C/W

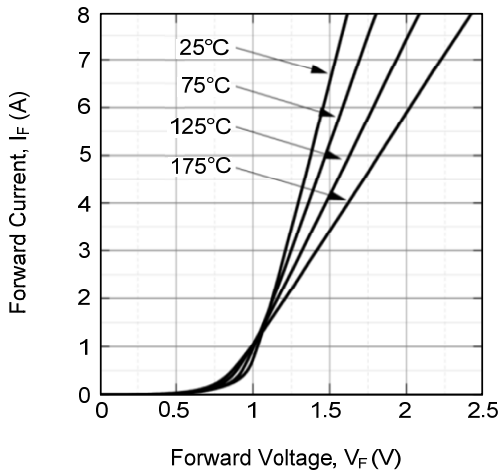
■ ELECTRICAL CHARACTERISTICS

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

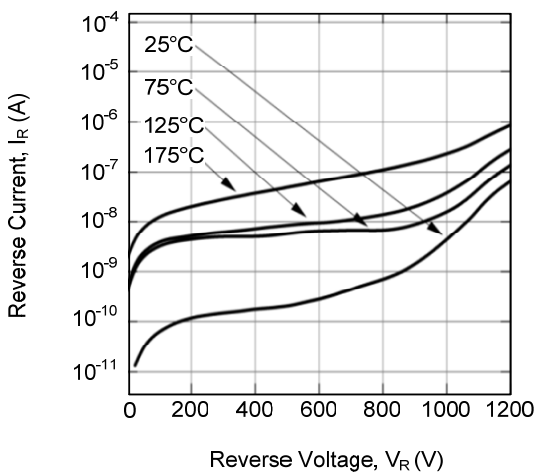
PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
DC Blocking Voltage	V_{DC}	T_C=25°C	1200			V
Forward Voltage	V_F	I_F=2.5A, T_J=25°C		1.18		V
		I_F=5A, T_J=25°C		1.38	1.6	V
		I_F=5A, T_J=175°C		1.82		V
Reverse Current	I_R	V_R=1200V, T_J=25°C		1	50	μA
		V_R=1200V, T_J=175°C		5		μA
Total Capacitive Charge	Q_C	V_R=800V		33		nC
Total Capacitance	C	V_R=1V, f=1MHz		321		pF
		V_R=400V, f=1MHz		28		pF
		V_R=800V, f=1MHz		23		pF
Capacitance Stored Energy	E_C	V_R=800V		7.2		μJ

■ TYPICAL CHARACTERISTICS

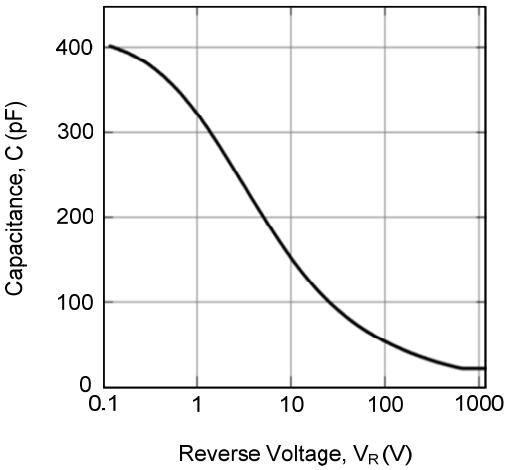
Forward Characteristics



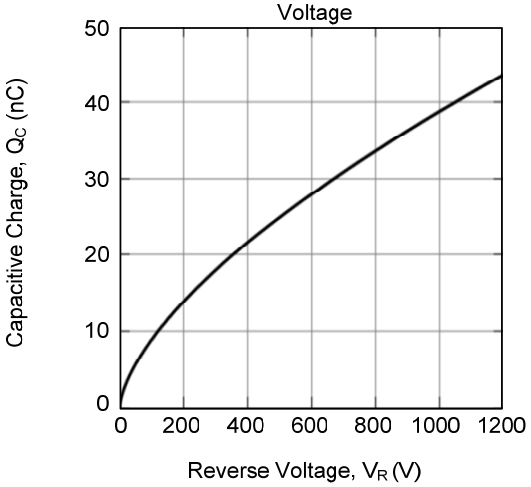
Reverse Characteristics



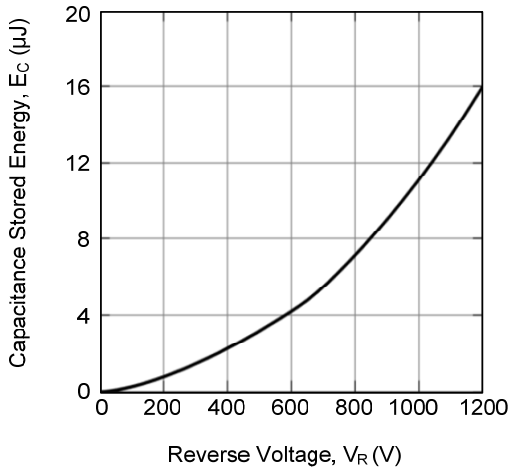
Capacitance vs. Reverse Voltage



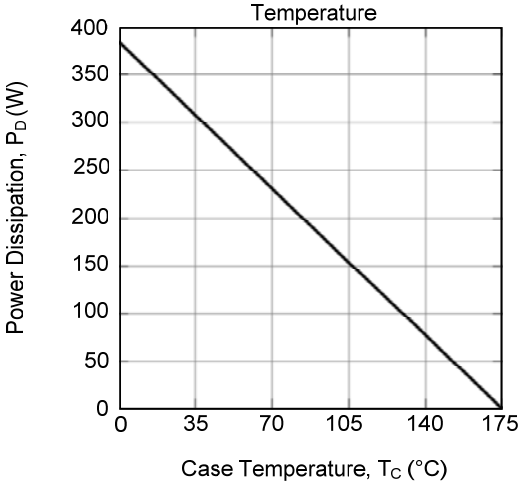
Capacitive Charge vs. Reverse Voltage



Capacitance Stored Energy



Power Dissipation vs. Case Temperature



■ TYPICAL CHARACTERISTICS (Cont.)