



UCBD05120SA

SiC-SBD DIODE

SILICON CARBIDE SCHOTTKY BARRIER DIODES

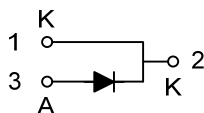
DESCRIPTION

The **UCBD05120SA** is an SiC Schottky barrier diodes (SBDs) feature high reverse voltage ratings. In addition to SBDs with short reverse recovery time (t_{rr}), provides 1200V SBDs with a junction barrier Schottky (JBS) structure that provide low leakage current (I_r) 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



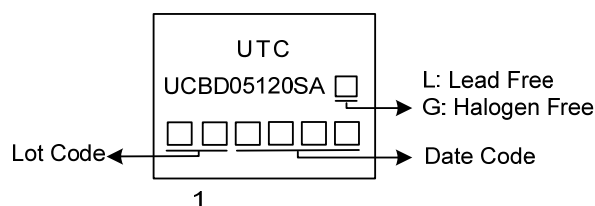
ORDERING INFORMATION

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 ($T_C=25^{\circ}\text{C}$, 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	$T_C=25^{\circ}\text{C}$	I_F	14	A
	$T_C=135^{\circ}\text{C}$		7	A
	$T_C=159^{\circ}\text{C}$		5	A
Repetitive Peak Forward Surge Current	$T_J=25^{\circ}\text{C}$ $t_P=10\text{ms}$, Half Sine Wave	I_{FRM}	39	A
Non-Repetitive Peak Forward Surge Current	$T_J=25^{\circ}\text{C}$ $t_P=10\text{ms}$, Half Sine Wave	I_{FSM}	45	A
	$T_J=110^{\circ}\text{C}$ $t_P=10\text{ms}$, Half Sine Wave		40	A
Power Dissipation	$T_C=25^{\circ}\text{C}$	P_D	385	W
	$T_C=110^{\circ}\text{C}$		167	W
	$T_C=150^{\circ}\text{C}$		64	W
Operating Junction Temperature		T_J	-55 ~ +175	$^{\circ}\text{C}$
Storage Temperature Range		T_{STG}	-55 ~ +175	$^{\circ}\text{C}$

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

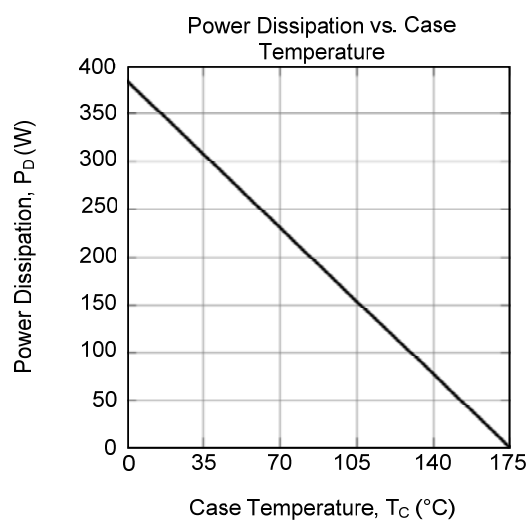
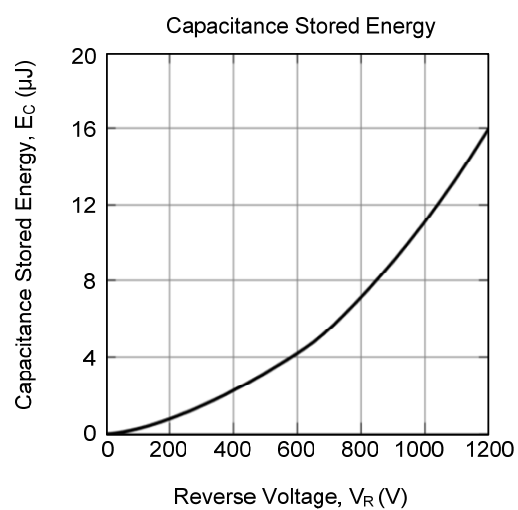
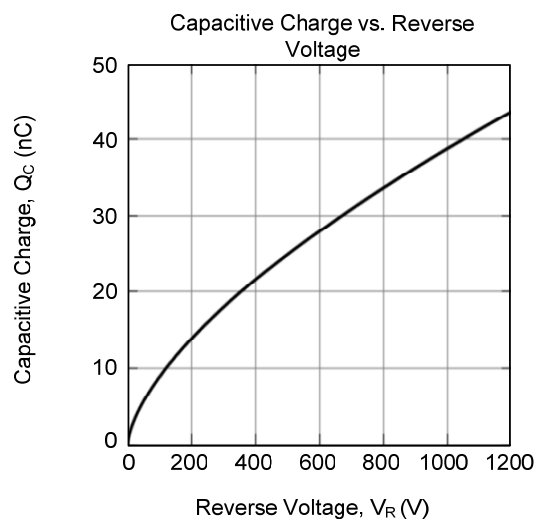
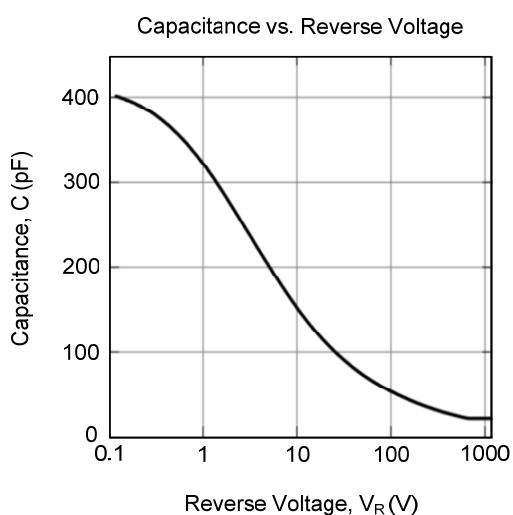
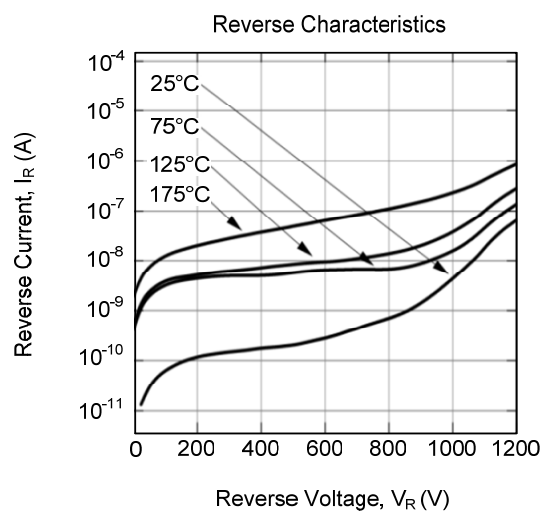
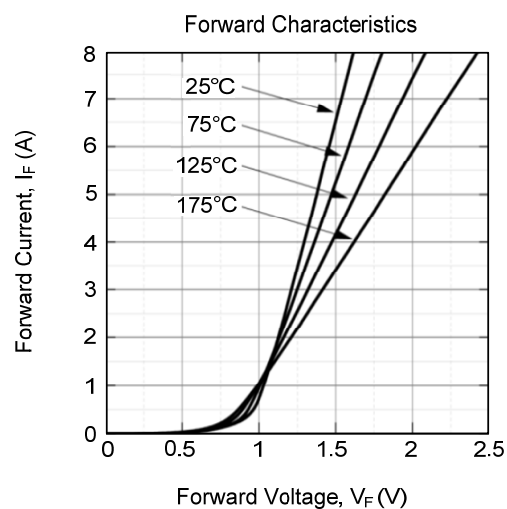
PARAMETER	SYMBOL	RATINGS	UNIT
Junction to Case	θ_{JC}	0.39	$^{\circ}\text{C/W}$

■ ELECTRICAL CHARACTERISTICS

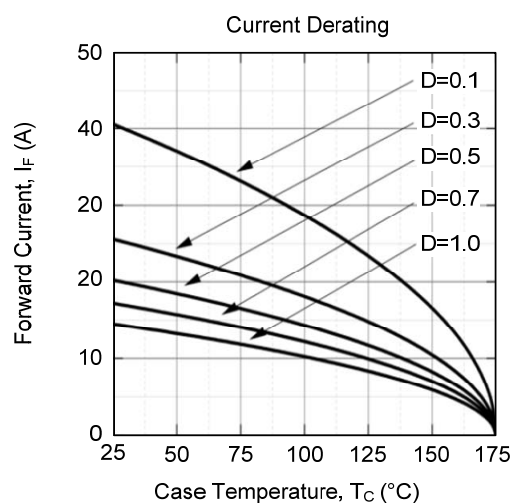
(Ratings at 25°C ambient temperature unless otherwise specified. Resistive or inductive load, 60Hz)

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

TYPICAL CHARACTERISTICS



■ TYPICAL CHARACTERISTICS (Cont.)



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