



## UCBD20120

## SiC-SBD DIODE

### SILICON CARBIDE SCHOTTKY BARRIER DIODES

#### DESCRIPTION

The **UCBD20120** 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 Forward/Reverse Recovery Current
- \* High Blocking Voltage
- \* High Frequency Operation
- \* Positive Temperature Coefficient on  $V_F$
- \* Temperature Independent Switching Behavior
- \* High surge current capability

#### SYMBOL



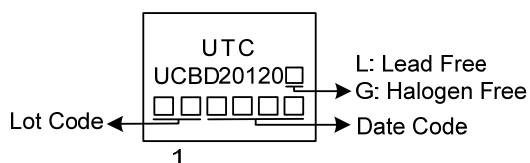
#### ORDERING INFORMATION

Ordering Number		Package	Pin Assignment		Packing
Lead Free	Halogen Free		1	2	
UCBD20120L-TA2-T	UCBD20120G-TA2-T	TO-220-2	K	A	Tube
UCBD20120L-T472-T	UCBD20120G-T472-T	TO-247-2	K	A	Tube

Note: Pin Assignment: K: Cathode A: Anode

UCBD20120G-TA2-T	(1)Packing Type	(1) T: Tube
	(2)Package Type	(2) TA2: TO-220-2, T472: TO-247-2
	(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  $25^{\circ}\text{C}$  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	$T_C=150^{\circ}\text{C}$	$I_F$	20	A
Repetitive Peak Forward Surge Current	$T_J=25^{\circ}\text{C}$ $t_p=10\text{ms}$ , Half Sine Wave	$I_{FRM}$	110	A
	$T_J=110^{\circ}\text{C}$ $t_p=10\text{ms}$ , Half Sine Wave		100	A
Non-Repetitive Peak Forward Surge Current	$T_J=25^{\circ}\text{C}$ $t_p=10\text{ms}$ , Half Sine Wave	$I_{FSM}$	140	A
	$T_J=110^{\circ}\text{C}$ $t_p=10\text{ms}$ , Half Sine Wave		130	A
Operating Junction Temperature		$T_J$	$-55 \sim +175$	$^{\circ}\text{C}$
Storage Temperature Range		$T_{STG}$	$-55 \sim +175$	$^{\circ}\text{C}$

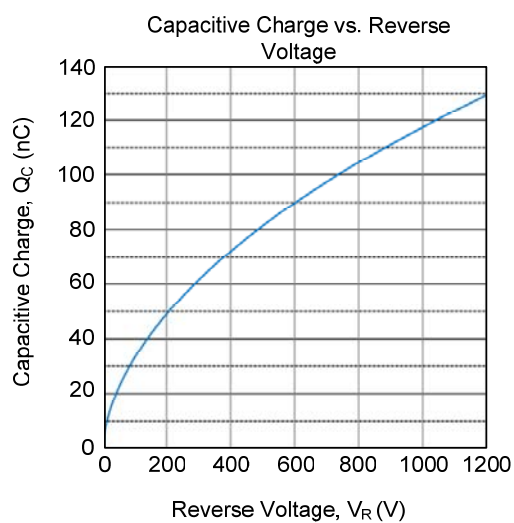
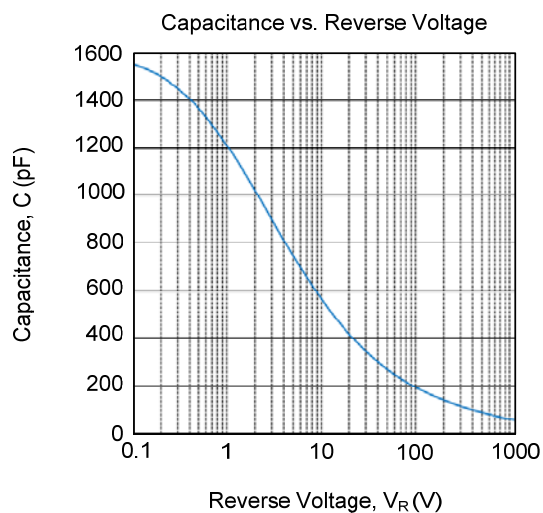
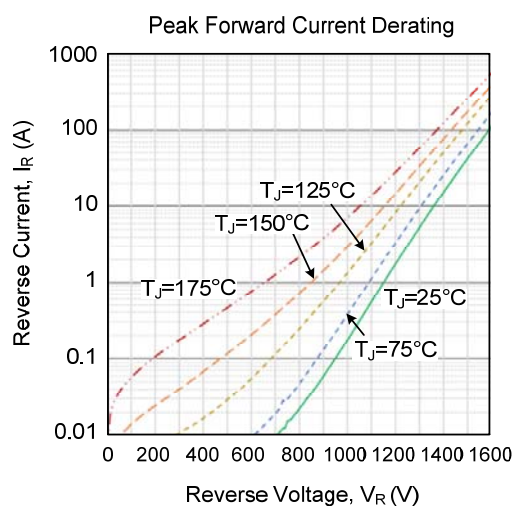
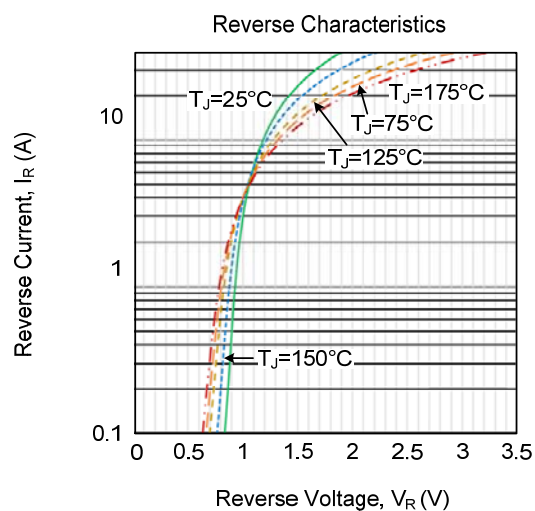
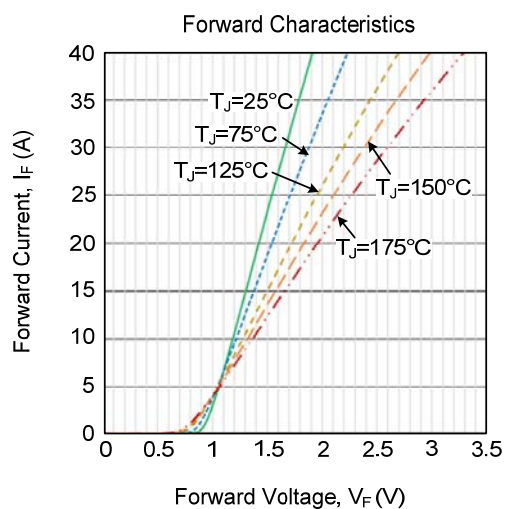
Note: Absolute maximum ratings are those values beyond which the device could be permanently damaged. Absolute maximum ratings are stress ratings only and functional device operation is not implied.

# ■ ELECTRICAL CHARACTERISTICS

(Ratings at  $25^{\circ}\text{C}$  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	$V_F$	$I_F=20\text{A}$ , $T_J=25^{\circ}\text{C}$		1.4	1.75	V
		$I_F=20\text{A}$ , $T_J=125^{\circ}\text{C}$		1.75		V
		$I_F=20\text{A}$ , $T_J=175^{\circ}\text{C}$		1.95		V
Reverse Current	$I_R$	$V_R=1200\text{V}$ , $T_J=25^{\circ}\text{C}$		2	150	$\mu\text{A}$
		$V_R=1200\text{V}$ , $T_J=125^{\circ}\text{C}$		9		$\mu\text{A}$
		$V_R=1200\text{V}$ , $T_J=175^{\circ}\text{C}$		30		$\mu\text{A}$
Total Capacitive Charge	$Q_C$	$V_R=800\text{V}$ , $T_J=25^{\circ}\text{C}$		105		nC
Total Capacitance	$C$	$V_R=1.0\text{V}$ , $T_J=25^{\circ}\text{C}$ , $f=1\text{MHz}$		1210		pF
		$V_R=400\text{V}$ , $T_J=25^{\circ}\text{C}$ , $f=1\text{MHz}$		100		pF
		$V_R=800\text{V}$ , $T_J=25^{\circ}\text{C}$ , $f=1\text{MHz}$		68		pF

# ■ TYPICAL CHARACTERISTICS



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