



UCBD50120-G4

Preliminary

SiC-SBD DIODE

SILICON CARBIDE SCHOTTKY BARRIER DIODES

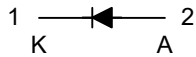
DESCRIPTION

The **UCBD50120-G4** 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



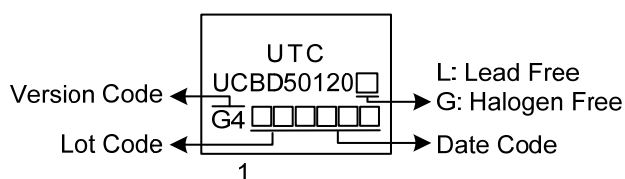
ORDERING INFORMATION

Ordering Number		Package	Pin Assignment		Packing
Lead Free	Halogen Free		1	2	
UCBD50120L-G4-T472-T	UCBD50120G-G4-T472-T	TO-247-2	K	A	Tube

Note: Pin Assignment: K: Cathode A: Anode

UCBD50120G-G4-T472-T	
(1)Packing Type	(1) T: Tube
(2)Package Type	(2) T472: TO-247-2
(3)Version Code	(3) Version G4
(4)Green Package	(4) 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	$T_C=150^{\circ}\text{C}$	I_F	50	A
Repetitive Peak Forward Surge Current	$T_J=25^{\circ}\text{C}$ $t_p=10\text{ms}$, Half Sine Wave	I_{FRM}	420	A
	$T_J=110^{\circ}\text{C}$ $t_p=10\text{ms}$, Half Sine Wave		380	A
Non-Repetitive Peak Forward Surge Current	$T_J=25^{\circ}\text{C}$ $t_p=10\text{ms}$, Half Sine Wave	I_{FSM}	450	A
	$T_J=110^{\circ}\text{C}$ $t_p=10\text{ms}$, Half Sine Wave		410	A
Power Dissipation	$T_C=25^{\circ}\text{C}$	P_D	625	W
	$T_C=110^{\circ}\text{C}$		271	W
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.

■ THERMAL DATA

PARAMETER	SYMBOL	MIN	TYP	MAX	UNIT
Junction to Case	θ_{JC}		0.24	0.28	$^{\circ}\text{C/W}$

■ 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	$I_F=50\text{A}$, $T_J=25^{\circ}\text{C}$		1.38	1.65	V
		$I_F=50\text{A}$, $T_J=125^{\circ}\text{C}$		1.59		V
		$I_F=50\text{A}$, $T_J=175^{\circ}\text{C}$		1.81		V
Reverse Current	I_R	$V_R=1200\text{V}$, $T_J=25^{\circ}\text{C}$		1	150	μA
		$V_R=1200\text{V}$, $T_J=125^{\circ}\text{C}$		4		μA
		$V_R=1200\text{V}$, $T_J=175^{\circ}\text{C}$		11		μA
Total Capacitive Charge	Q_C	$V_R=800\text{V}$, $T_J=25^{\circ}\text{C}$		260		nC
Total Capacitance	C	$V_R=1\text{V}$, $T_J=25^{\circ}\text{C}$, $f=1\text{MHz}$		2970		pF
		$V_R=400\text{V}$, $T_J=25^{\circ}\text{C}$, $f=1\text{MHz}$		248		pF
		$V_R=800\text{V}$, $T_J=25^{\circ}\text{C}$, $f=1\text{MHz}$		186		pF

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