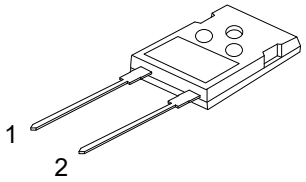
UCBD4065

SiC-SBD DIODE

SILICON CARBIDE SCHOTTKY DIODE



TO-247-2

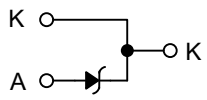
■ DESCRIPTION

The **UCBD4065** is an SiC Schottky barrier diodes (SBDs) feature high reverse voltage ratings. In addition to SBDs with short reverse recovery time (trr), provides 650V 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 Forward/Reverse Recovery Current
* High Blocking Voltage
* High Frequency Operation
* Positive Temperature Coefficient on V_F
* Temperature Independent Switching Behavior
* 100% avalanche tested

■ SYMBOL



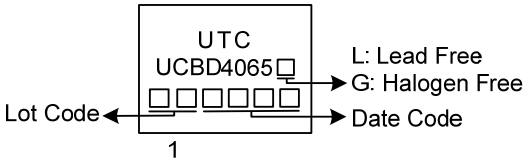
■ ORDERING INFORMATION

Ordering Number		Package	Pin Assignment		Packing
Lead Free	Halogen Free		1	2	
UCBD4065L-T472-T	UCBD4065G-T472-T	TO-247-2	K	A	Tube

Note: Pin Assignment: K: Cathode A: Anode

UCBD4065G-T472-T (1)Packing Type (2)Package Type (3)Green Package	(1) T: Tube (2) T472: TO-247-2 (3) G: Halogen Free and Lead Free, L: Lead Free

■ MARKING



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

PARAMETER		SYMBOL	RATINGS	UNIT
Repetitive Peak Reverse Voltage		V_{RRM}	650	V
Surge Peak Reverse Voltage		V_{RSM}	650	V
DC Blocking Voltage		V_R	650	V
Continuous Forward Current	T_C=25°C	I_F	79	A
	T_C=120°C		44	A
	T_C=130°C		40	A
Repetitive Peak Forward Surge Current	T_J=25°C t_P=10ms, Half Sine Wave	I_{FRM}	170	A
	T_J=110°C t_P=10ms, Half Sine Wave		160	A
Non-Repetitive Peak Forward Surge Current	T_J=25°C t_P=10ms, Half Sine Wave	I_{FSM}	160	A
	T_J=110°C t_P=10ms, Half Sine Wave		150	A
Total power dissipation		P_D	250	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}	0.6	°C/W

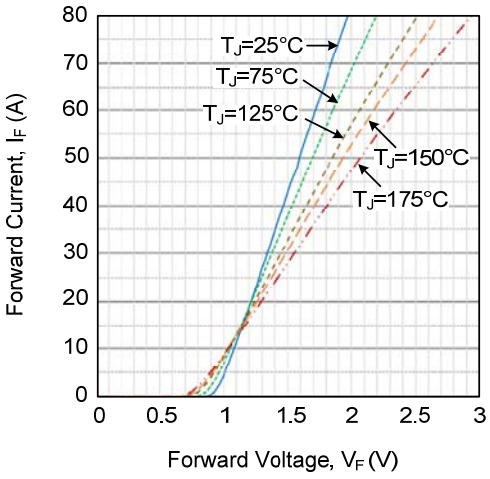
■ ELECTRICAL CHARACTERISTICS

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

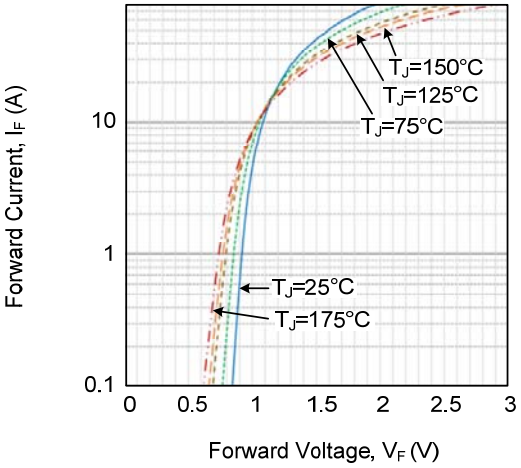
PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
DC Blocking Voltage	V_{DC}	T_C=25°C	650			V
Forward Voltage	V_F	I_F=40A, T_J=25°C		1.46	1.75	V
		I_F=40A, T_J=125°C		1.65		V
		I_F=40A, T_J=175°C		1.8		V
Reverse Current	I_R	V_R=650V, T_J=25°C		1	70	μA
		V_R=650V, T_J=125°C		6		μA
		V_R=650V, T_J=175°C		22		μA
Total Capacitive Charge	Q_C	V_R=400V, T_J=25°C		96		nC
Total Capacitance	C	V_R=1V, T_J=25°C, f=1MHz		1757		pF
		V_R=200V, T_J=25°C, f=1MHz		182		pF
		V_R=400V, T_J=25°C, f=1MHz		136		pF

■ TYPICAL CHARACTERISTICS

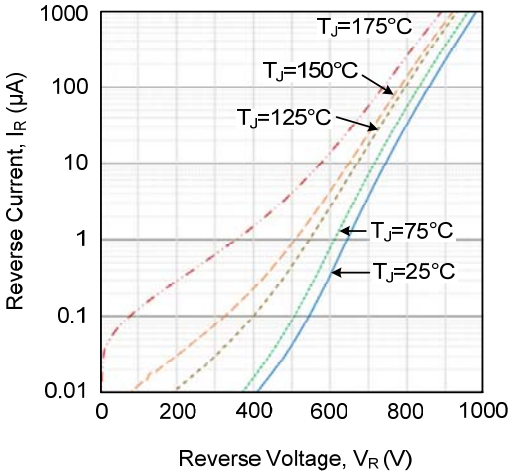
Forward Characteristics



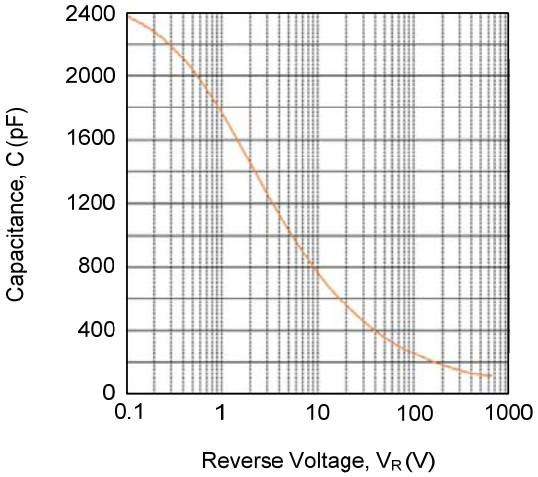
Forward Characteristics



Reverse Characteristics



Capacitance vs. Reverse Voltage



Capacitance Charge vs. Reverse Voltage