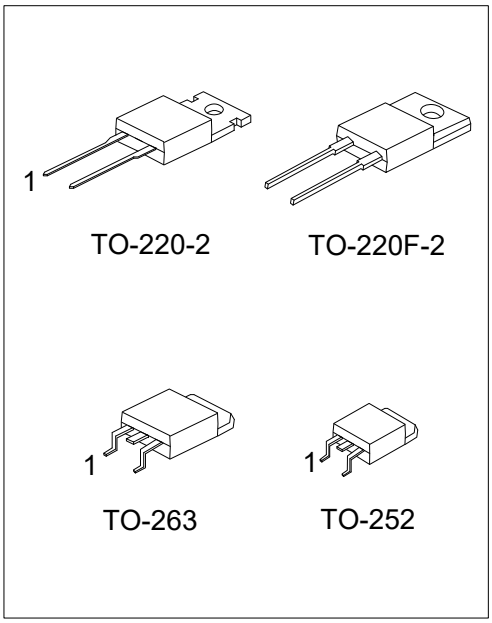
UCBD0865SA

SiC-SBD DIODE

SILICON CARBIDE SCHOTTKY BARRIER DIODES



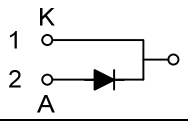
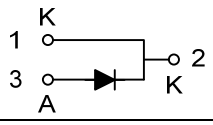
■ DESCRIPTION

The **UCBD0865SA** 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

* Negligible reverse recovery
* Benchmark switching behavior
* Positive temperature coefficient
* Temperature-Independent switching

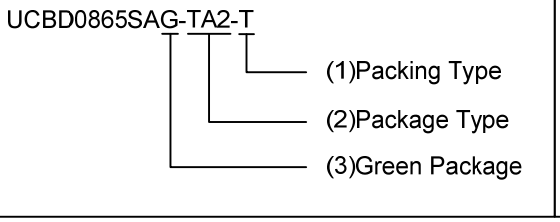
■ SYMBOL

TO-220-2 / TO-220F-2	TO-252 / TO-263
	

■ ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
UCBD0865SAL-TA2-T	UCBD0865SAG-TA2-T	TO-220-2	K	A	-	Tube
UCBD0865SAL-TF32-T	UCBD0865SAG-TF32-T	TO-220F-2	K	A	-	Tube
UCBD0865SAL-TN3-R	UCBD0865SAG-TN3-R	TO-252	K	K	A	Tape Reel
UCBD0865SAL-TQ2-T	UCBD0865SAG-TQ2-T	TO-263	K	K	A	Tube
UCBD0865SAL-TQ2-R	UCBD0865SAG-TQ2-R	TO-263	K	K	A	Tape Reel

Note: Pin Assignment: K: Cathode A: Anode

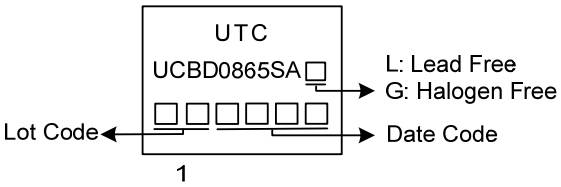


(1) T: Tube, R: Tape Reel

(2) TA2: TO-220-2, TF32: TO-220F-2, TN3: TO-252
TQ2: TO-263

(3) G: Halogen Free and Lead Free, L: Lead Free

■ MARKING


UTC
UCBD0865SA
L: Lead Free
G: Halogen Free
Lot Code
Date Code
1

■ 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}	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	31	A
	T_C=135°C		16	A
	T_C=165°C		8	A
Repetitive Peak Forward Surge Current	T_J=25°C t_P=10ms, Half Sine Wave	I_{FRM}	76	A
Non-Repetitive Peak Forward Surge Current	T_J=25°C t_P=10ms, Half Sine Wave	I_{FSM}	94	A
	T_J=110°C t_P=10ms, Half Sine Wave		89	A
Power Dissipation	TO-220-2	P_D	94	W
	TO-220F-2		89	W
	TO-252		106	W
	TO-263		88	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

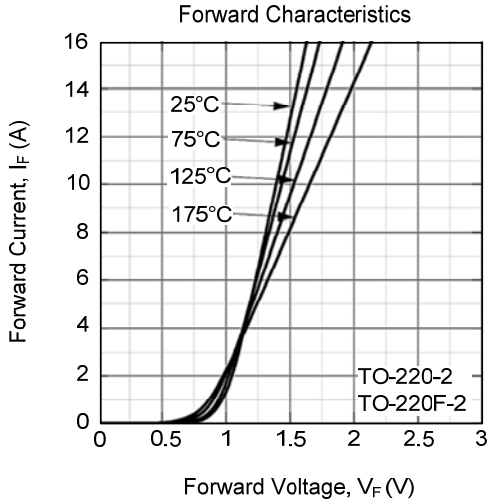
PARAMETER		SYMBOL	RATINGS	UNIT
Junction to Case	TO-220-2	θ_{JC}	1.6	°C/W
	TO-220F-2		1.68	°C/W
	TO-252		1.41	°C/W
	TO-263		1.7	°C/W

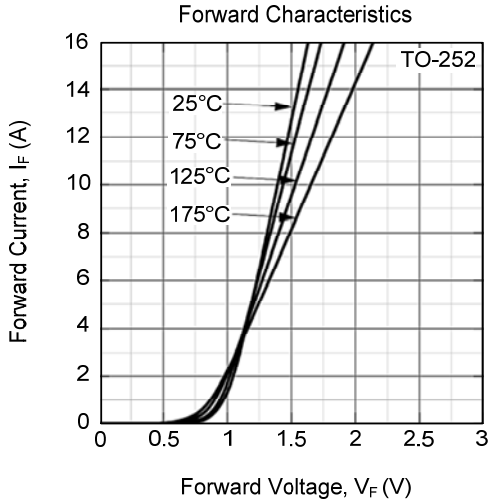
■ ELECTRICAL CHARACTERISTICS

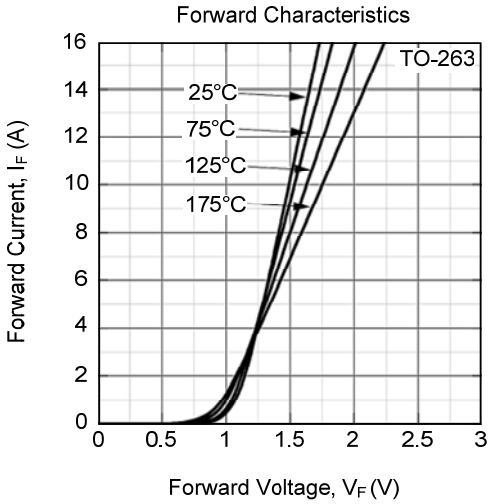
(Ratings at 25°C ambient temperature unless otherwise specified. Resistive or inductive load, 60Hz)

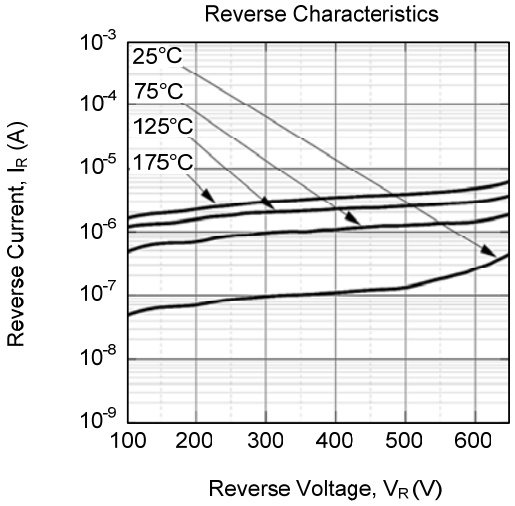
PARAMETER		SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
DC Blocking Voltage		V_{DC}	T_C=25°C	650			V
Forward Voltage	TO-220-2 TO-220F-2 TO-252	V_F	I_F=4.0A, T_J=25°C		1.14		V
	TO-263				1.18		V
	TO-220-2 TO-220F-2		I_F=8.0A, T_J=25°C		1.31	1.5	V
	TO-252				1.30	1.5	V
	TO-263				1.37	1.6	V
	TO-220-2 TO-220F-2		I_F=8.0A, T_J=175°C		1.5		V
	TO-252				1.49		V
	TO-263				1.61		V
Reverse Current		I_R	V_R=650V, T_J=25°C		1	50	μA
			V_R=650V, T_J=175°C		8		μA
Total Capacitive Charge		Q_C	V_R=400V		26		nC
Total Capacitance		C	V_R=1.0V, f=1MHz		359		pF
			V_R=200V, f=1MHz		50		pF
			V_R=400V, f=1MHz		44		pF
Capacitance Stored Energy		E_C	V_R=400V		3.6		μJ

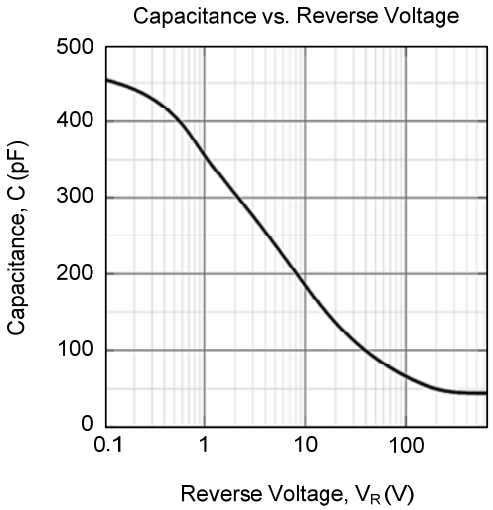
■ TYPICAL CHARACTERISTICS

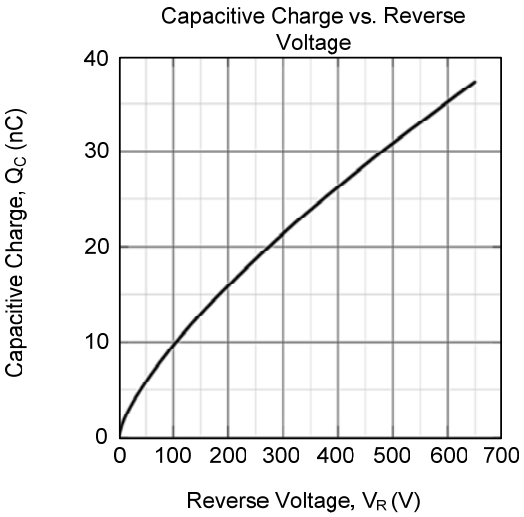












■ TYPICAL CHARACTERISTICS (Cont.)