



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 (t_{rr}), provides 650V 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

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

■ SYMBOL

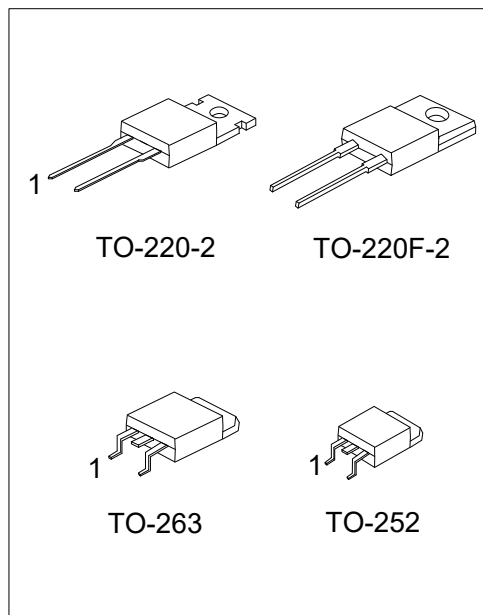
TO-220-2 / TO-220F-2	TO-252 / TO-263

■ ORDERING INFORMATION

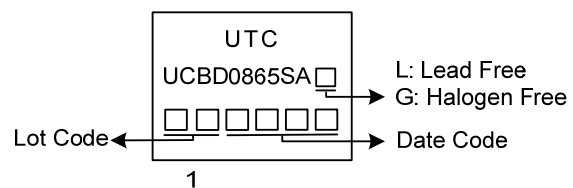
Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
UCBD0865SAL-TA2-T	UCBD0865SAG-TA2-T	TO-220-2	K	A	-	Tube
UCBD0865SAL-TF32-T	UCBD0865SAG-TF32-T	TO-220F-2	K	A	-	Tube
UCBD0865SAL-TN3-R	UCBD0865SAG-TN3-R	TO-252	K	K	A	Tape Reel
UCBD0865SAL-TQ2-T	UCBD0865SAG-TQ2-T	TO-263	K	K	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
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■ 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}	650	V
Surge Peak Reverse Voltage		V_{RSM}	650	V
DC Blocking Voltage		V_R	650	V
Continuous Forward Current	$T_C=25^{\circ}\text{C}$	I_F	31	A
	$T_C=135^{\circ}\text{C}$		16	A
	$T_C=165^{\circ}\text{C}$		8	A
Repetitive Peak Forward Surge Current	$T_J=25^{\circ}\text{C}$ $t_p=10\text{ms}$, Half Sine Wave	I_{FRM}	76	A
Non-Repetitive Peak Forward Surge Current	$T_J=25^{\circ}\text{C}$ $t_p=10\text{ms}$, Half Sine Wave	I_{FSM}	94	A
	$T_J=110^{\circ}\text{C}$ $t_p=10\text{ms}$, 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	$-55 \sim +175$	$^{\circ}\text{C}$
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**

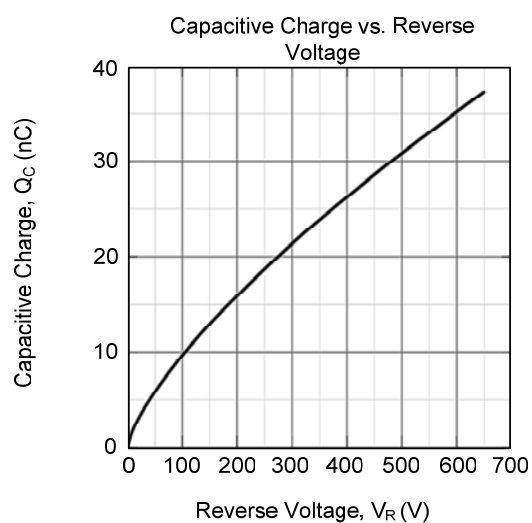
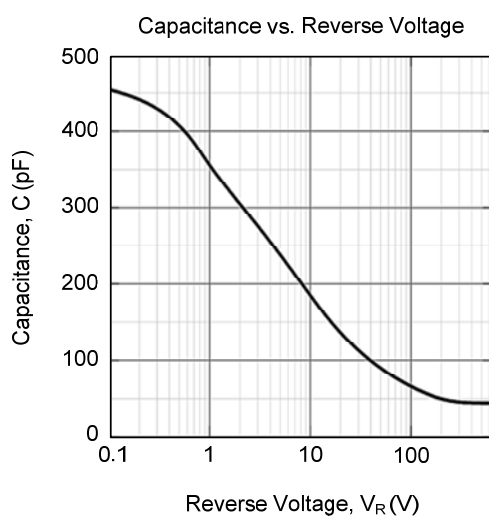
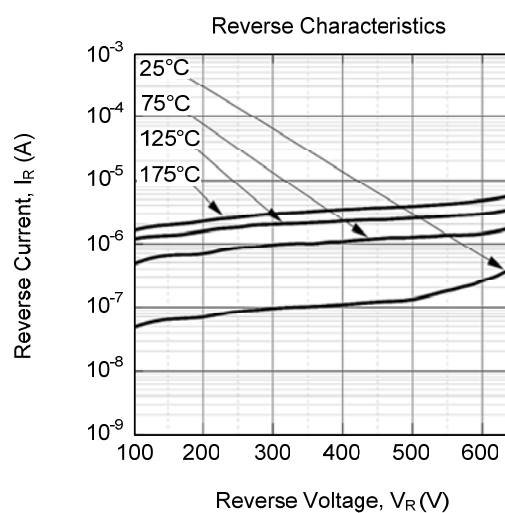
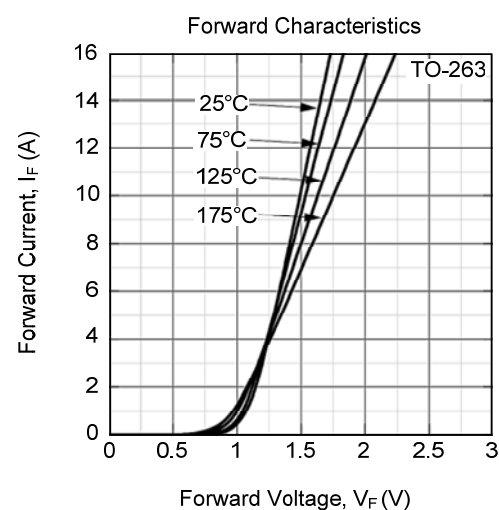
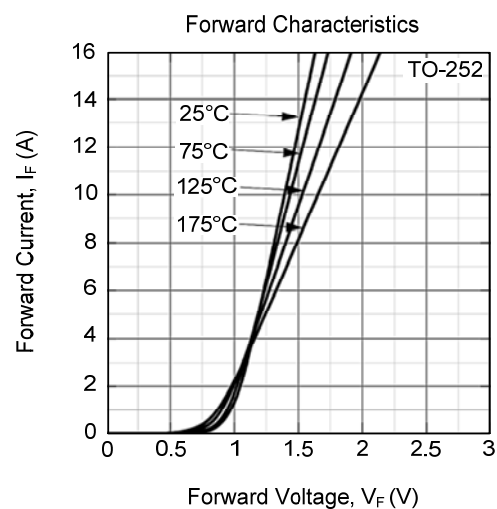
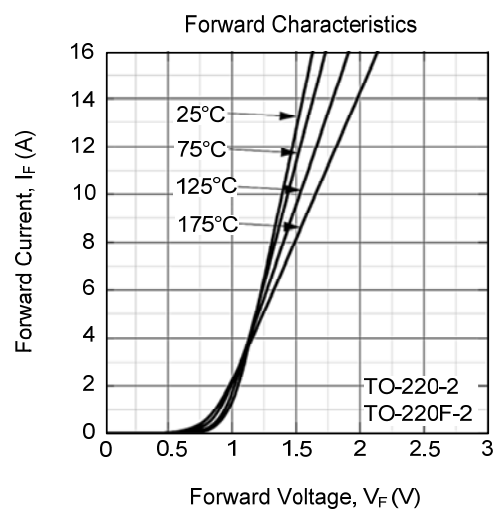
PARAMETER		SYMBOL	RATINGS	UNIT
Junction to Case	TO-220-2	θ_{JC}	1.6	$^{\circ}\text{C/W}$
	TO-220F-2		1.68	$^{\circ}\text{C/W}$
	TO-252		1.41	$^{\circ}\text{C/W}$
	TO-263		1.7	$^{\circ}\text{C/W}$

■ ELECTRICAL CHARACTERISTICS

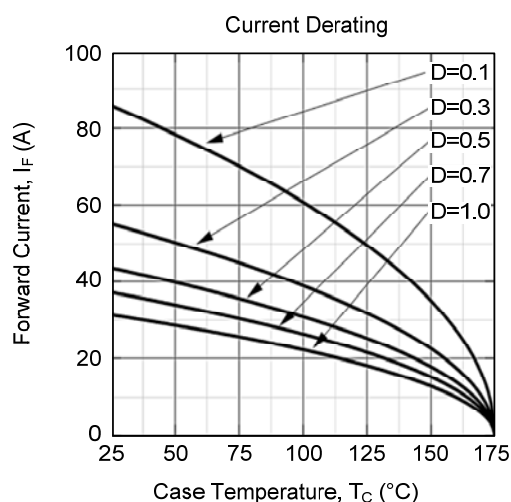
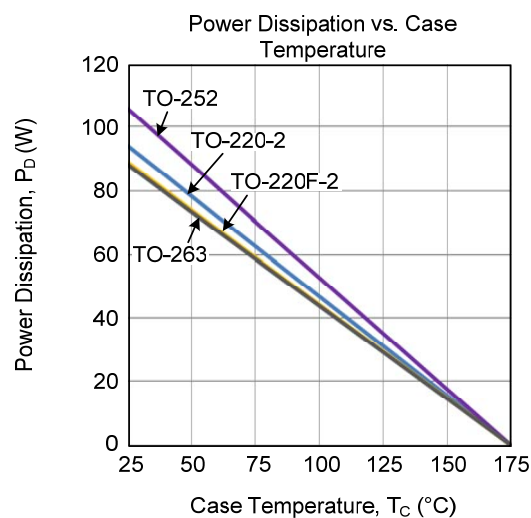
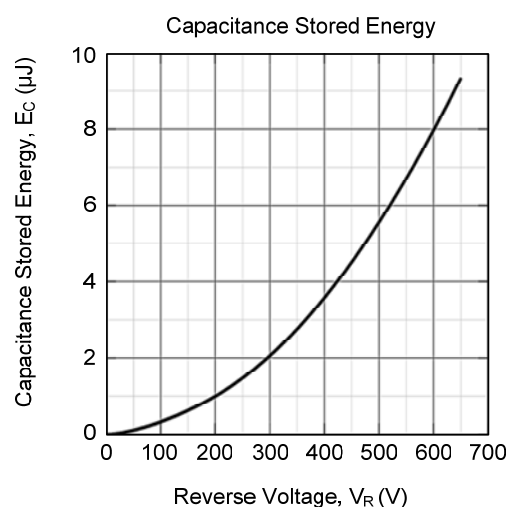
(Ratings at 25°C ambient temperature unless otherwise specified. Resistive or inductive load, 60Hz)

PARAMETER		SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
DC Blocking Voltage		V_{DC}	$T_C=25^{\circ}C$	650			V
Forward Voltage	TO-220-2	V_F	$I_F=4.0A, T_J=25^{\circ}C$		1.14		V
	TO-220F-2						
	TO-252						
	TO-263		$I_F=8.0A, T_J=25^{\circ}C$		1.18		V
	TO-220-2				1.31	1.5	V
	TO-220F-2						
	TO-252				1.30	1.5	V
	TO-263				1.37	1.6	V
	TO-220-2		$I_F=8.0A, T_J=175^{\circ}C$		1.5		V
	TO-220F-2						
	TO-252				1.49		V
	TO-263				1.61		V
Reverse Current		I_R	$V_R=650V, T_J=25^{\circ}C$		1	50	μA
			$V_R=650V, T_J=175^{\circ}C$		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.)



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