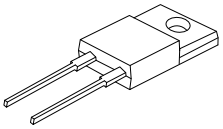
UCBD0465SA

SiC-SBD DIODE

SILICON CARBIDE SCHOTTKY BARRIER DIODES



TO-220F-2

PDFN5×6

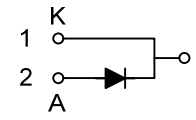
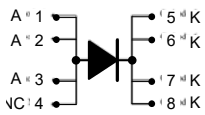
■ DESCRIPTION

The **UCBD0465SA** 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 Behavior

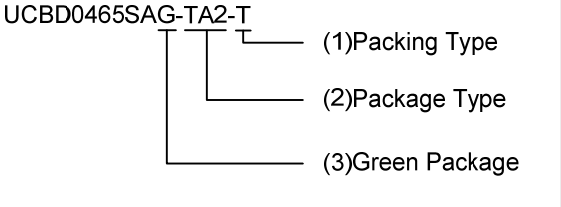
■ SYMBOL

TO-220-2	PDFN5×6
	

■ ORDERING INFORMATION

Ordering Number		Package	Pin Assignment								Packing
Lead Free	Halogen Free		1	2	3	4	5	6	7	8	
UCBD0465SAL-TA2-T	UCBD0465SAG-TA2-T	TO-220-2	K	A	-	-	-	-	-	-	Tube
UCBD0465SAL-P5060-R	UCBD0465SAG-P5060-R	PDFN5×6	A	A	A	NC	K	K	K	K	Tape Reel

Note: Pin Assignment: G: Gate D: Drain S: Source

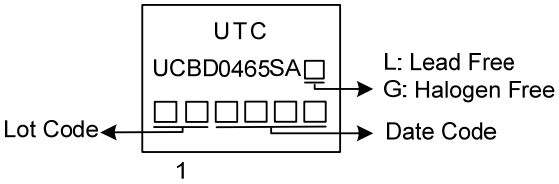
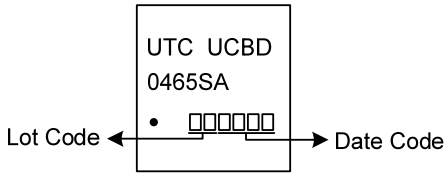


(1) T: Tube, R: Tape Reel

(2) TA2: TO-220-2, P5060: PDFN5×6

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

■ MARKING

TO-220F	PDFN5×6
	

■ 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	14	A
		T_C=135°C		7	A
		T_C=167°C		4	A
Repetitive Peak Forward Surge Current		T_J=25°C t_P=10ms, Half Sine Wave	I_{FRM}	37	A
Non-Repetitive Peak Forward Surge Current		T_J=25°C t_P=10ms, Half Sine Wave	I_{FSM}	42	A
		T_J=110°C t_P=10ms, Half Sine Wave		38	A
Power Dissipation	TO-220-2	T_C=25°C	P_D	58	W
		T_C=110°C		25	W
		T_C=150°C		10	W
	PDFN5×6	T_C=25°C		75	W
		T_C=110°C		33	W
		T_C=150°C		13	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}	2.6	°C/W
	PDFN5×6		2	°C/W

■ ELECTRICAL CHARACTERISTICS

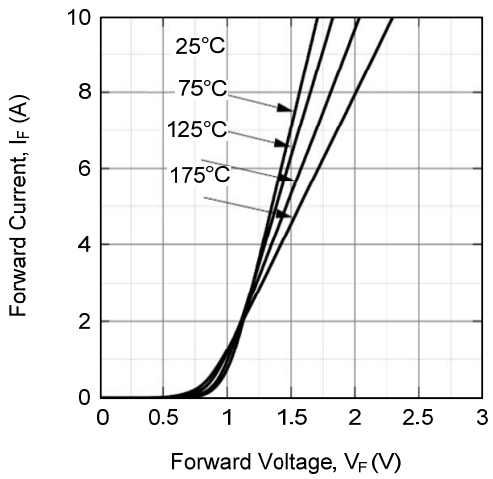
(Ratings at 25°C ambient temperature unless otherwise specified. Resistive or inductive load, 60Hz)

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=2A, T_J=25°C		1.12		V
		I_F=4A, T_J=25°C		1.26	1.5	V
		I_F=4A, T_J=175°C		1.43		V
Reverse Current	I_R	V_R=650V, T_J=25°C		1	50	μA
		V_R=650V, T_J=175°C		5		μA
Total Capacitive Charge	Q_C	V_R=400V		14		nC
Total Capacitance	C	V_R=1V, f=1MHz		200		pF
		V_R=200V, f=1MHz		26		pF
		V_R=400V, f=1MHz		25		pF
Capacitance Stored Energy	E_C	V_R=400V		2		μJ

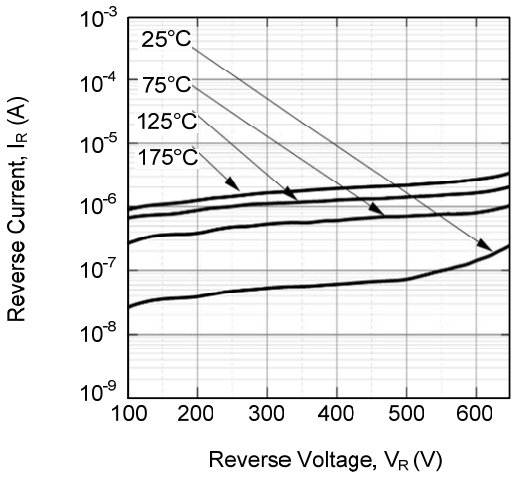
■ TYPICAL CHARACTERISTICS

TO-220-2

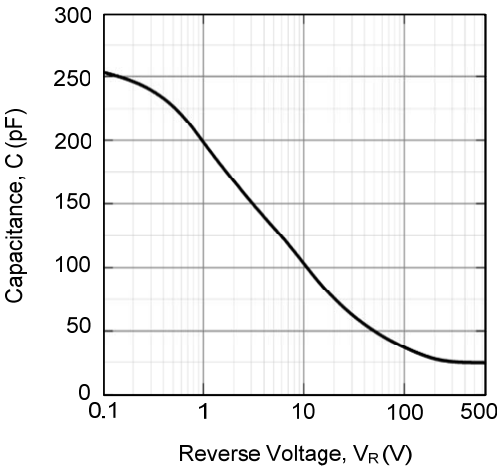
Forward Characteristics



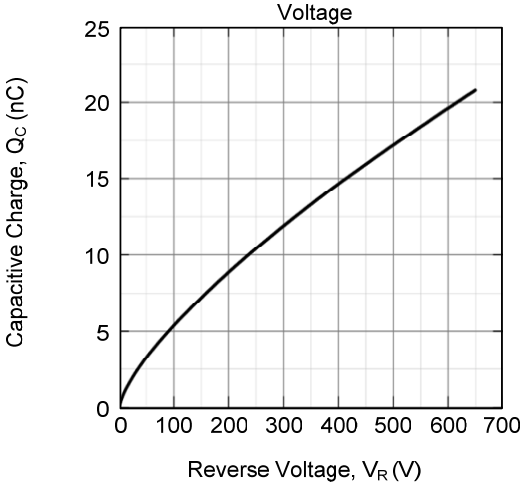
Reverse Characteristics



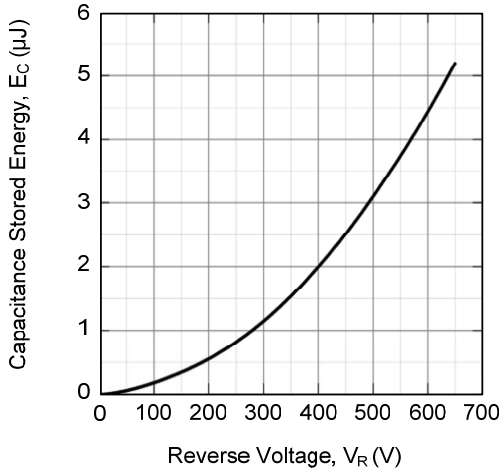
Capacitance vs. Reverse Voltage



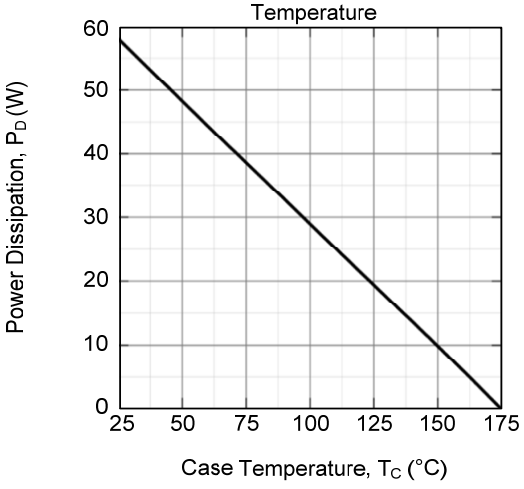
Capacitive Charge vs. Reverse Voltage



Capacitance Stored Energy

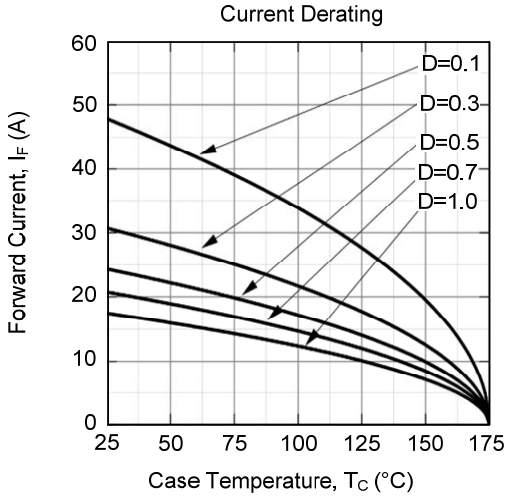


Power Dissipation vs. Case Temperature

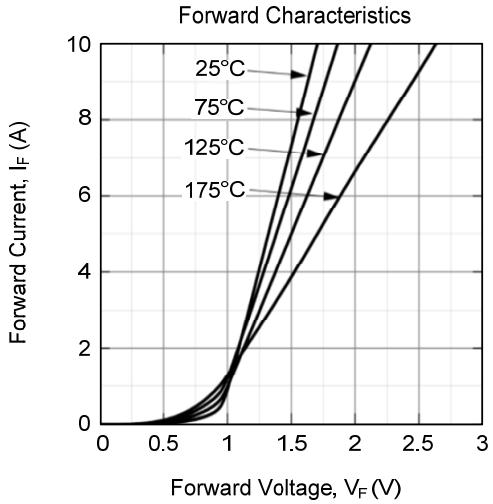


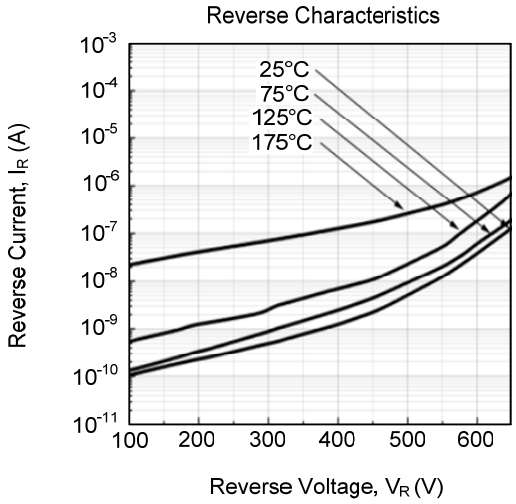
■ TYPICAL CHARACTERISTICS (Cont.)

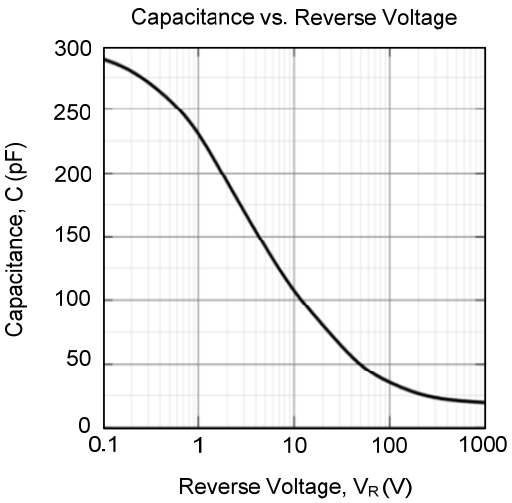
TO-220-2

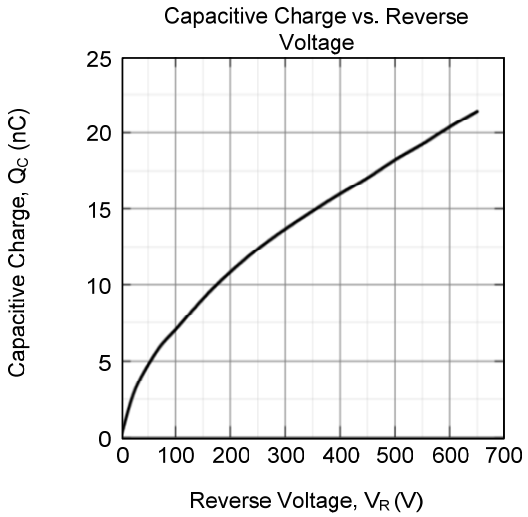


PDFN5×6









■ TYPICAL CHARACTERISTICS

PDFN5×6