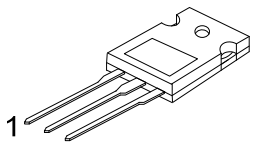
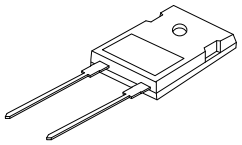
UCBD40120

Preliminary | ***SiC-SBD DIODE***

SILICON CARBIDE SCHOTTKY BARRIER DIODES



TO-247



TO-247-2

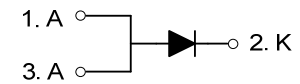
■ DESCRIPTION

The **UCBD40120** is an SiC Schottky barrier diodes (SBDs) feature high reverse voltage ratings. In addition to SBDs with short reverse recovery time (trr), provides 1200V 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
* High surge current capability

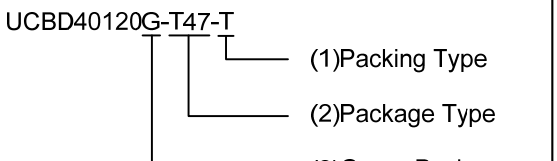
■ SYMBOL

TO-247	TO-247-2
	

■ ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
UCBD40120L-T47-T	UCBD40120G-T47-T	TO-247	A	K	A	Tube
UCBD40120L-T472-T	UCBD40120G-T472-T	TO-247-2	K	A	-	Tube

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

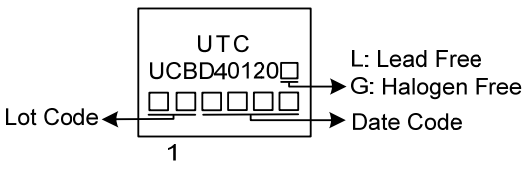


(1) T: Tube

(2) T47: TO-247, T472: TO-247-2

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

■ MARKING



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■ 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}	1200	V
Surge Peak Reverse Voltage		V_{RSM}	1200	V
DC Blocking Voltage		V_R	1200	V
Continuous Forward Current	T_C=150°C	I_F	40	A
Repetitive Peak Forward Surge Current	T_J=25°C t_P=10ms, Half Sine Wave	I_{FRM}	110	A
	T_J=110°C t_P=10ms, Half Sine Wave		100	A
Non-Repetitive Peak Forward Surge Current	T_J=25°C t_P=10ms, Half Sine Wave	I_{FSM}	140	A
	T_J=110°C t_P=10ms, Half Sine Wave		130	A
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.

■ 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	1200			V
Forward Voltage	V_F	I_F=40A, T_J=25°C		1.4	1.75	V
		I_F=40A, T_J=125°C		1.75		V
		I_F=40A, T_J=175°C		1.95		V
Reverse Current	I_R	V_R=1200V, T_J=25°C		2	150	μA
		V_R=1200V, T_J=125°C		9		μA
		V_R=1200V, T_J=175°C		30		μA
Total Capacitive Charge	Q_C	V_R=800V, T_J=25°C		105		nC
Total Capacitance	C	V_R=1.0V, T_J=25°C, f=1MHz		1210		pF
		V_R=400V, T_J=25°C, f=1MHz		100		pF
		V_R=800V, T_J=25°C, f=1MHz		68		pF

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