

SILICON CARBIDE SCHOTTKY DIODE

REVERSE VOLTAGE – 650 Volts
FORWARD CURRENT – 6 Amperes

FEATURES

- Positive temperature coefficient for safe operation and easy of paralleling
- 175°C maximum operating junction temperature
- Essentially no reverse or forward recovery
- Extremely fast switching not dependent on temperature
- Qualification is according to AEC-Q101 Rev_D
- **Lead-Free Finish; RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. “Green” Device (Note 3)**

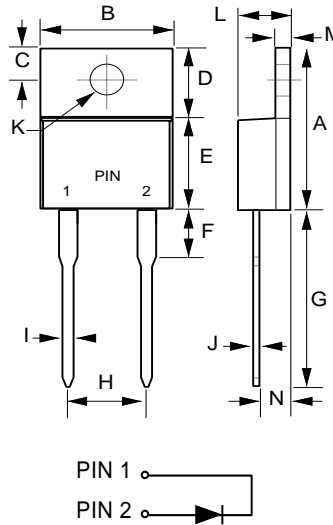
APPLICATION

- Power converters
- Switching-mode power supplies
- Power factor correction modules

MECHANICAL DATA

- Package: JEDEC TO-220AC
- Package Material: “Green” molding compound, UL flammability classification 94V-0, “Halogen-free”.
- Terminals: Finish – Matte Tin Plated Leads Ⓢ
- Weight: 1.894 grams (Approximate)
- Marking code: LSC06065W

TO-220AC



TO-220AC		
DIM	MIN	MAX
A	14.40	15.20
B	9.65	10.67
C	2.54	3.43
D	5.84	6.86
E	8.26	9.28
F	--	4.2
G	12.70	14.73
H	4.83	5.33
I	0.51	1.14
J	0.30	0.64
K	3.53 Ø	4.09Ø
L	3.56	4.83
M	1.14	1.40
N	2.03	2.92
All dimension in millimeter		

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified.

ABSOLUTE RATINGS

PARAMETER	SYMBOL	VALUE	UNIT
Maximum repetitive peak reverse voltage	V_{RRM}	650	V
Maximum DC blocking voltage	V_{DC}	650	V
Maximum Average rectified output current	$I_{(AV)}$	6	A
Peak forward surge current 8.3ms single half sine-wave Superimposed on rated load.	I_{FSM}	36	A
Operating junction and Storage Temperature range	T_J, T_{STG}	-55 to +175	°C

STATIC ELECTRICAL CHARACTERISTICS

PARAMETER	TEST CONDITIONS	SYMBOL	TYP	MAX	UNIT
Forward voltage (Note 4)	$I_F=6A$ $T_J=25^\circ C$ $T_J=175^\circ C$	V_F	-- 1.94	1.70 2.25	V
Leakage current	$V_R=650V$ $T_J=25^\circ C$ $T_J=175^\circ C$	I_R	-- 6.98	200 640	μA
Typical junction capacitance (Note 5)		C_J		195	pF

DYNAMIC ELECTRICAL CHARACTERISTICS

PARAMETER	TEST CONDITIONS	SYMBOL	TYP	UNIT
Total Capacitive Charge	$I_F=6A, V_R=400V, dl/dt= 250A/\mu S,$	Q_C	15	nC

THERMAL CHARACTERISTICS

PARAMETER	SYMBOL	TYP	UNIT
Typical thermal resistance (Notes 6, 7)	R_{thJc} R_{thJL}	3 3	°C/W

Notes:

1. EU Directive 2002/95/EC (RoHS), 2011/65/EU (RoHS 2) & 2015/863/EU (RoHS 3) compliant. All applicable RoHS exemptions applied.
2. See <https://www.diodes.com/quality/lead-free/> for more information about Diodes Incorporated's definitions of Halogen- and Antimony-free, "Green" and Lead-free.
3. Halogen- and Antimony-free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
4. 300 μs pulse width, 2% duty cycle.
5. Measured at 1.0MHz and applied voltage of 1.0V DC.
6. Thermal resistance test performed in accordance with JESD-51.
7. The unit mounted on fin-type heatsink (40mm x 23mm x 15.9mm).

RATING AND CHARACTERISTIC CURVES
LSC06065W

FIG.1 FORWARD CURRENT DERATING CURVE

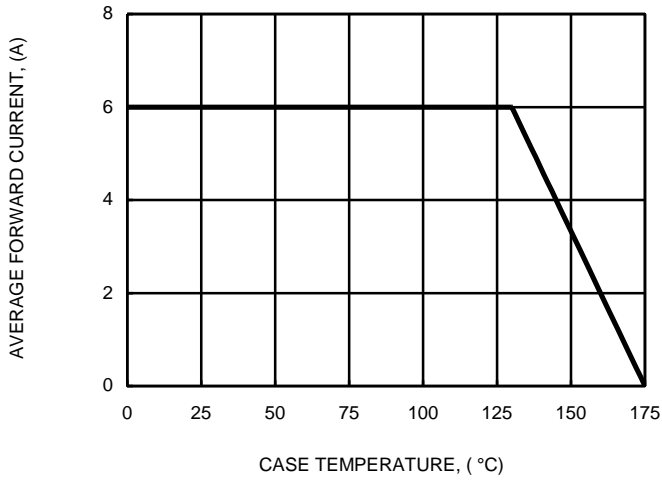


FIG.2 NON-REPETITIVE PEAK SURGE FORWARD CURRENT

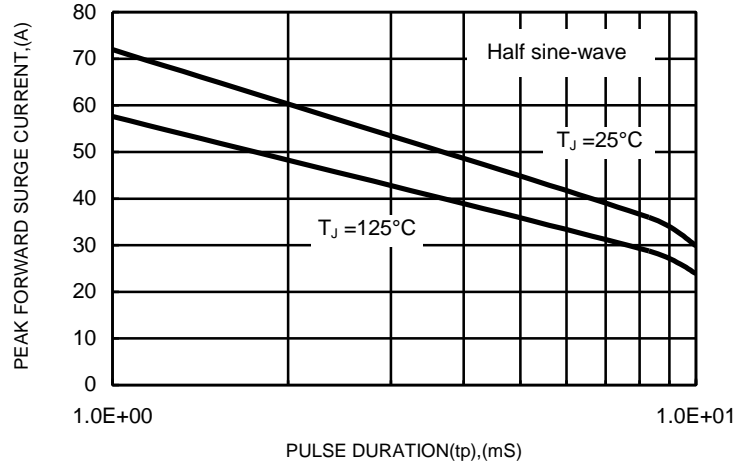


FIG.3 TYPICAL FORWARD CHARACTERISTICS

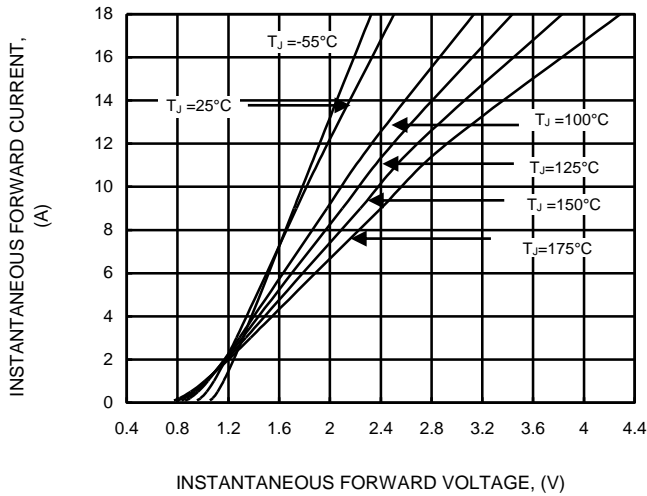


FIG.4 TYPICAL JUNCTION CAPACITANCE

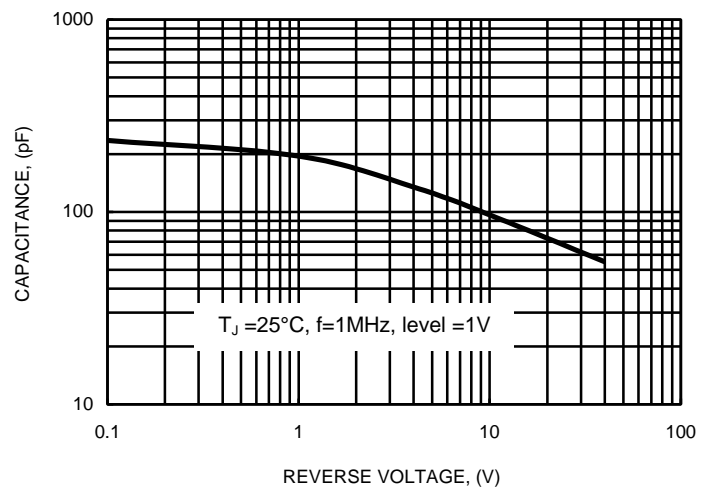


FIG.5 TYPICAL REVERSE CHARACTERISTICS

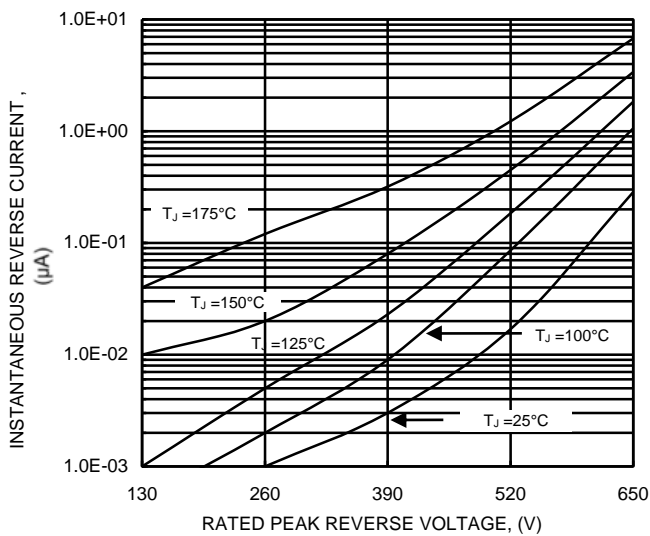
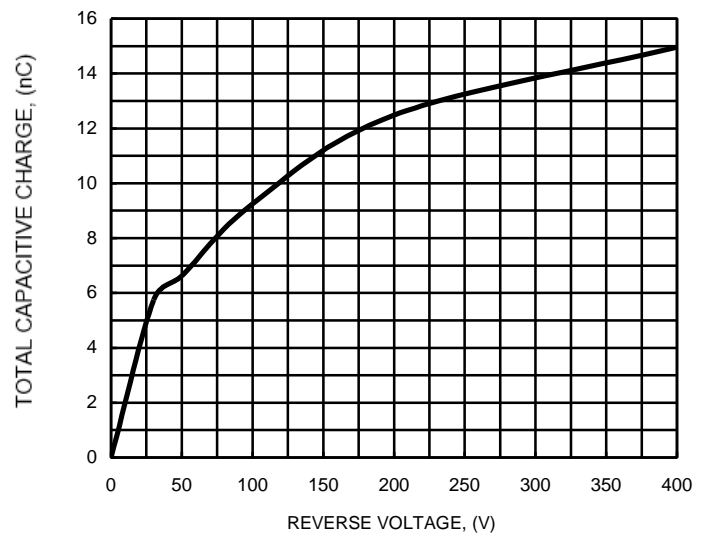


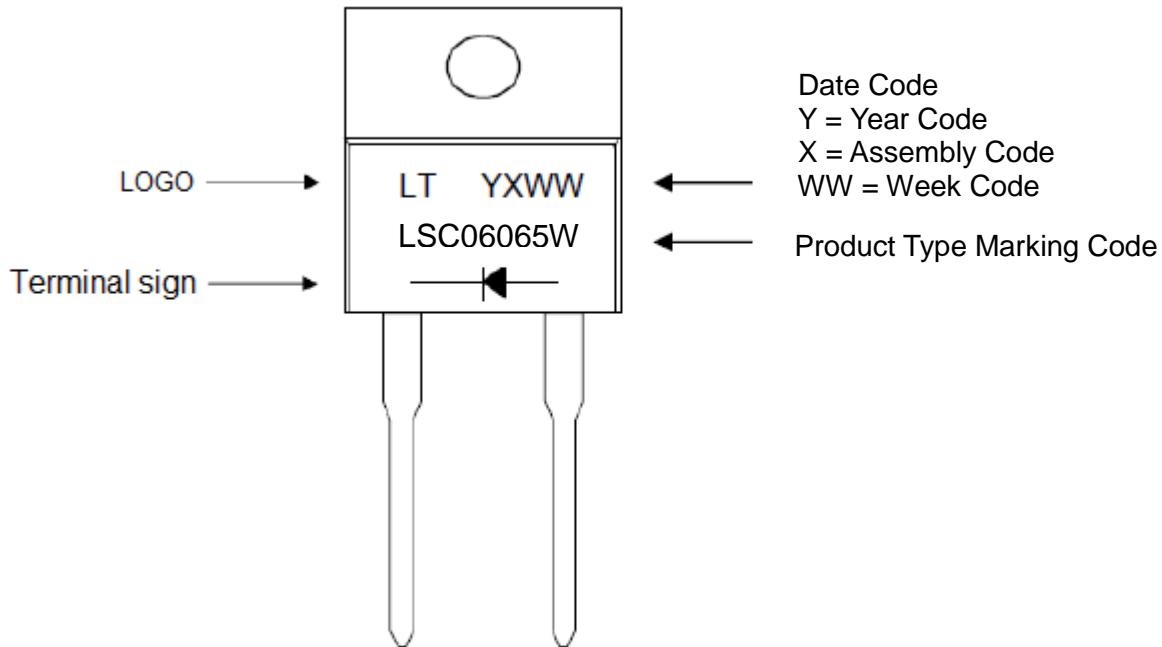
FIG.6 TYPICAL CAPACITIVE CHARGES



Ordering Information:

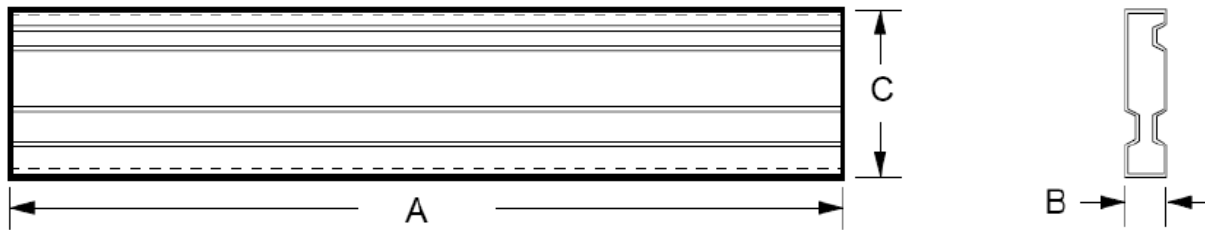
Part Number	Package	Packing	
		Qty.	Carrier
LSC06065W	TO-220AC	50pcs	Tube

Marking Information:

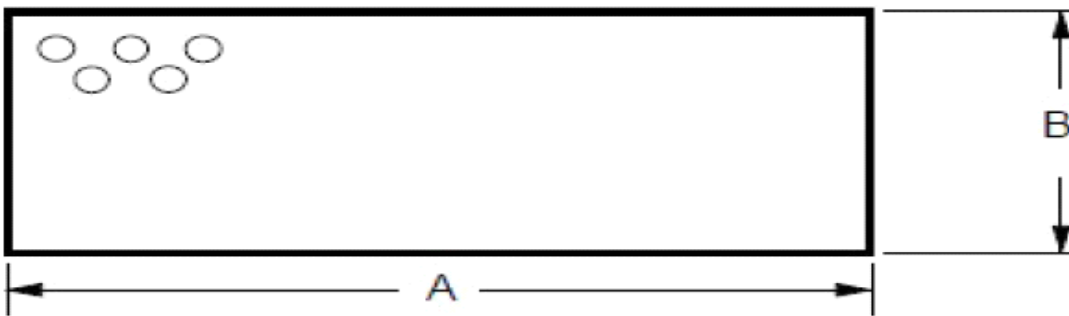


Packaging Information:

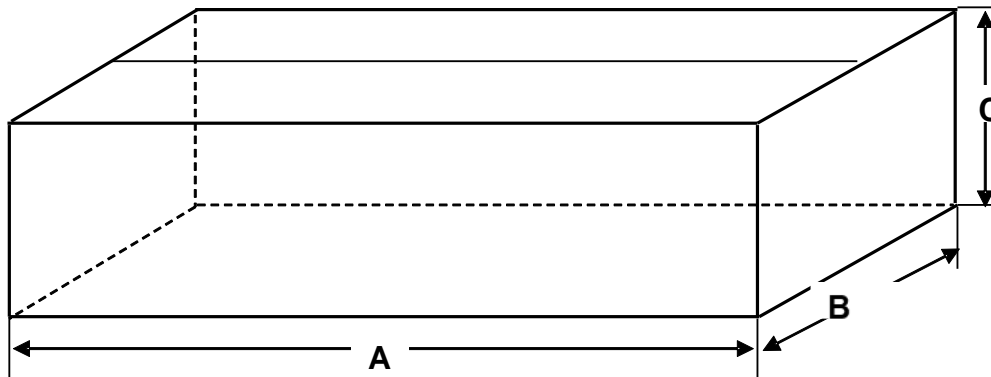
1. TUBE



2. AIR BAG



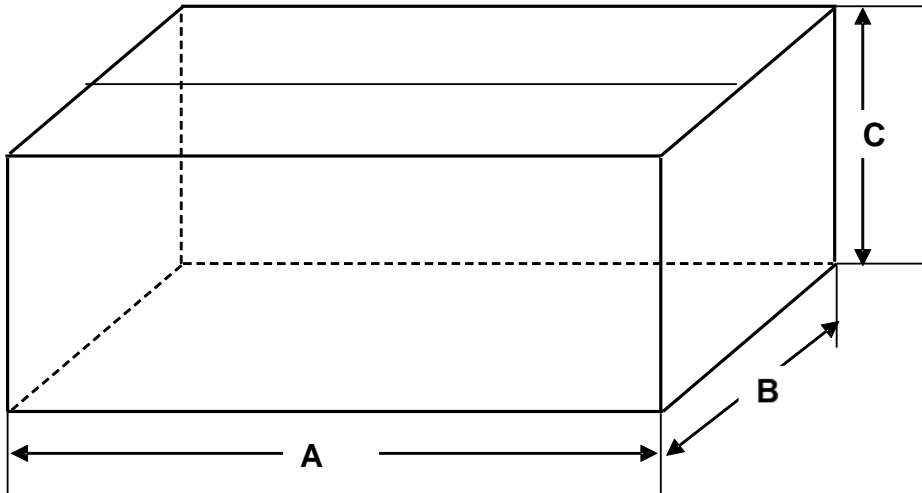
3. INNERBOX



PACKAGING INFORMATION
LSC06065W

Packaging Information:

4. CARTON



Unit: mm

P/N	DIMENSION "A"	DIMENSION "B"	DIMENSION "C"	Q'ty/per	REMARK
TUBE	536	5.6	31.8	50	/
AIR BAG	800	550	/	/	/
INNERBOX	555	165	105	2000	40TUBE
CARTON	575	179	225	4K	2 INNER BOX

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