

## SILICON CARBIDE SCHOTTKY DIODE

**REVERSE VOLTAGE** – 1200 Volts  
**FORWARD CURRENT** – 5 Amperes

### FEATURES

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

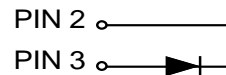
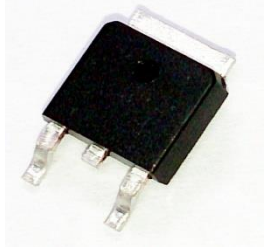
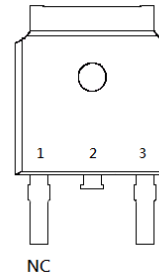
### APPLICATION

- Switch mode power supplies
- Power factor correction

### MECHANICAL DATA

- Package: TO-252 molded plastic
- Package Material: "Green" molding compound, UL flammability classification 94V-0, "Halogen-free".
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Matte Tin Finish Annealed over Copper Leadframe (Lead Free Plating). Solderable per MIL-STD-202, Method 208 ③
- Weight: 0.989 grams (Approximate)
- Marking Code: LSC05120DW

### DPAK



## 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	$V_{RRM}$	1200	V
Maximum DC blocking voltage	$V_{DC}$	1200	V
Maximum average rectified output current	$I_{(AV)}$	5	A
Peak forward surge current 10ms single half sine-wave superimposed on rated load	$I_{FSM}$	60	A
Operating junction and storage temperature range	$T_J, T_{STG}$	-55 ~ +175	°C

### STATIC ELECTRICAL CHARACTERISTICS

PARAMETER	TEST CONDITIONS	SYMBOL	TYP	MAX	UNIT
Forward voltage (Note 4)	$I_F=5A$ $T_J=25^\circ C$ $T_J=150^\circ C$	$V_F$	-- 1.9	1.7 2.3	V
Reverse leakage current	$V_R=1200V$ $T_J=25^\circ C$ $T_J=150^\circ C$	$I_R$	-- 263	190 ---	$\mu A$

### DYNAMIC ELECTRICAL CHARACTERISTICS

PARAMETER	SYMBOL	TYP	UNIT
Total Capacitive Charge	$Q_C$	18	nC
Typical junction capacitance (Note 5)	$C_J$	255	pF

### THERMAL CHARACTERISTICS

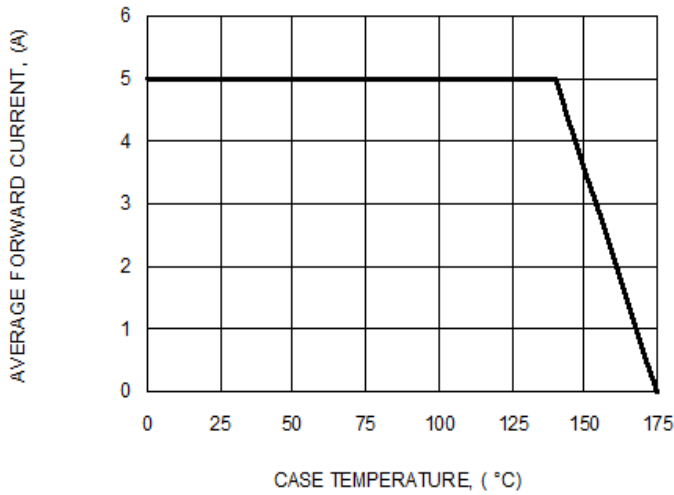
PARAMETER	SYMBOL	TYP	UNIT
Typical thermal resistance (Notes 6, 7)	$R_{thJC}$ $R_{thJL}$	3 3	°C/W

#### Notes:

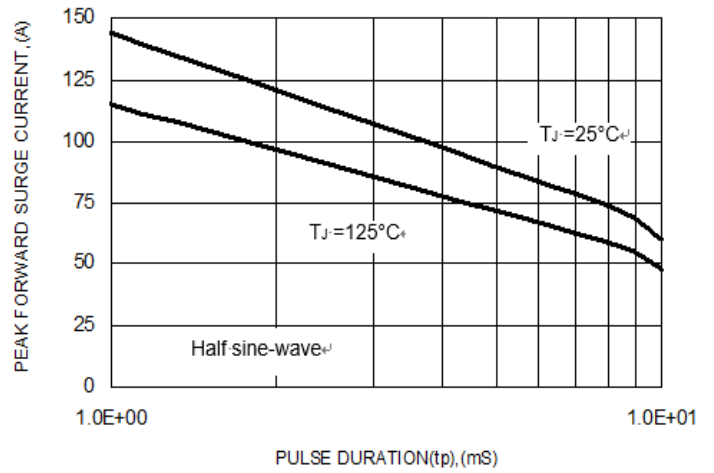
1. EU Directive 2002/95/EC (RoHS), 2011/65/EU (RoHS 2) & 2015/863/EU (RoHS 3) compliant. All applicable RoHS exemptions applied.
2. See <https://www.diodes.com/quality/lead-free/> for more information about Diodes Incorporated's definitions of Halogen- and Antimony-free, "Green" and Lead-free.
3. Halogen- 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 $\mu s$  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 Aluminum fin-type Heatsink 35mm x 22.85mm x 16mm.

**RATING AND CHARACTERISTIC CURVES**  
**LSC05120DW**

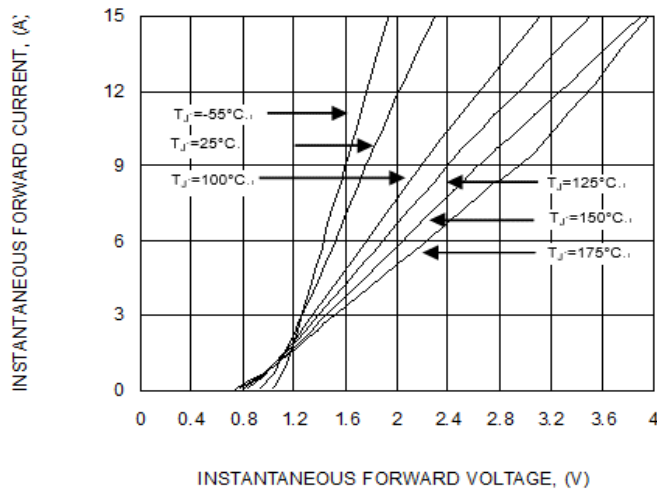
**FIG.1 FORWARD CURRENT DERATING CURVE**



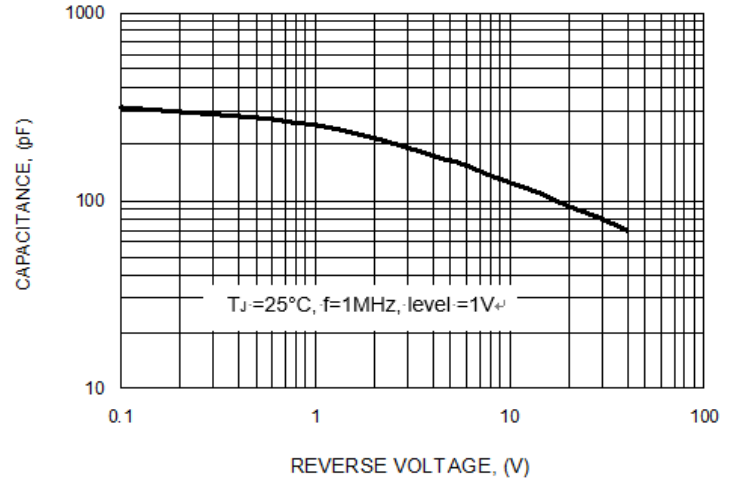
**FIG.2 NON-REPETITIVE PEAK SURGE FORWARD CURRENT**



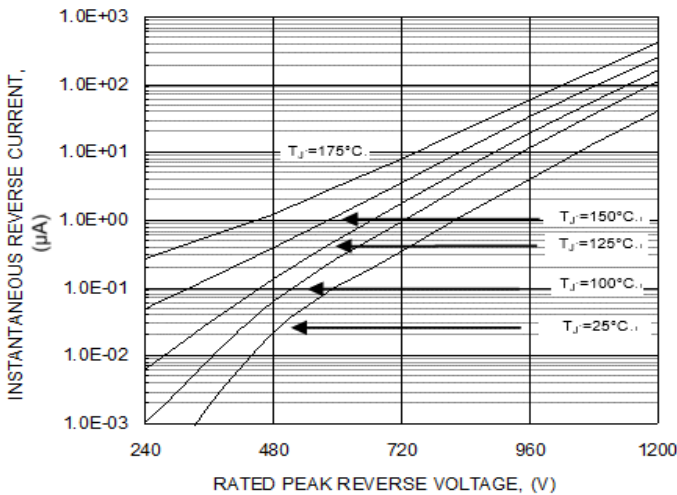
**FIG.3 TYPICAL FORWARD CHARACTERISTICS**



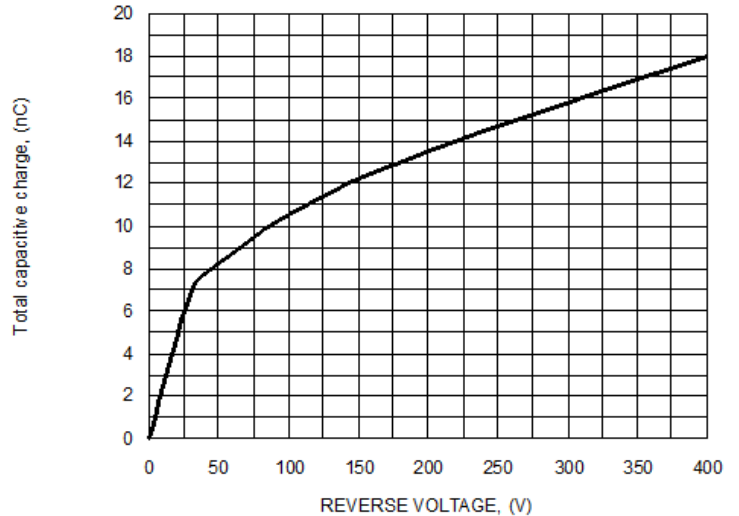
**FIG.4 TYPICAL JUNCTION CAPACITANCE**



**FIG.5 TYPICAL REVERSE CHARACTERISTICS**

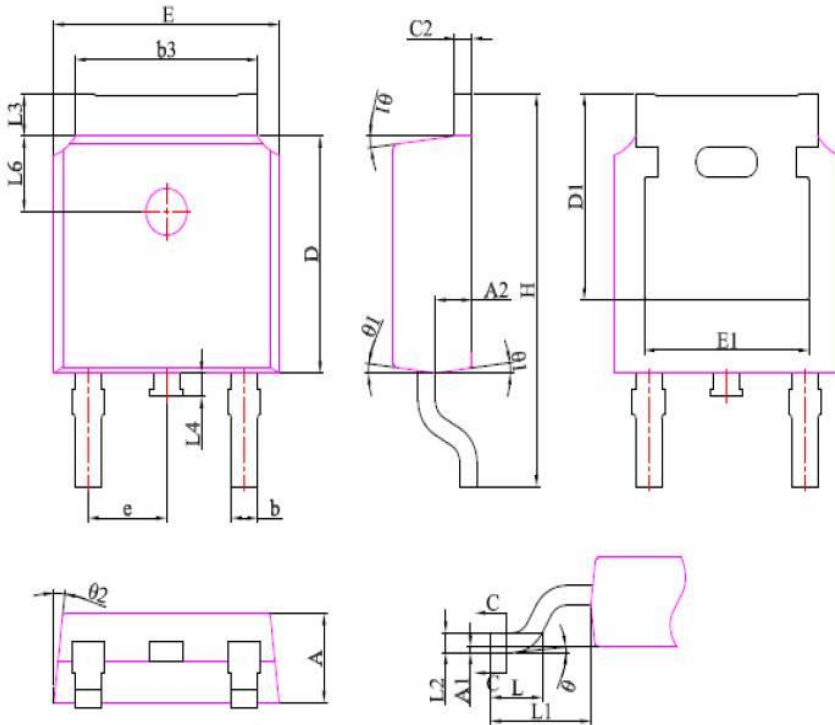


**FIG.6 TYPICAL CAPACITIVE CHARGES**



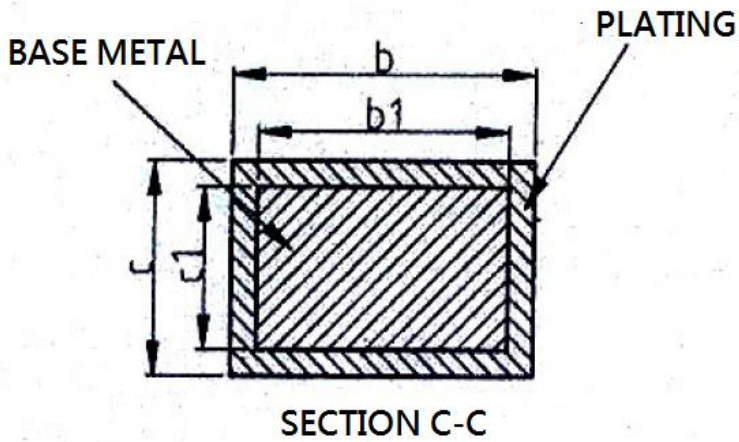
**MECHANICAL INFORMATION**  
**LSC05120DW**

**Package Dimension:**



TO-252			
DIM	MIN	TYP	MAX
A	2.20	2.30	2.40
A1	0.00	--	0.15
A2	0.97	1.07	1.17
b	0.68	0.78	0.90
b1	0.66	0.76	0.88
b3	5.20	5.33	5.50
C	0.43	0.53	0.63
C1	0.41	0.51	0.61
C2	0.43	0.53	0.63
D	5.98	6.10	6.22
D1	5.30 REF		
E	6.40	6.60	6.80
E1	4.63	4.83	5.03
e	2.286 REF		
H	9.40	10.10	10.50
L	1.38	1.50	1.75
L1	2.90 REF		
L2	0.51 BSC		
L3	0.88	--	1.28
L4	--	--	1.00
θ	0°	--	8°
θ1	5°	7°	9°
θ2	5°	7°	9°

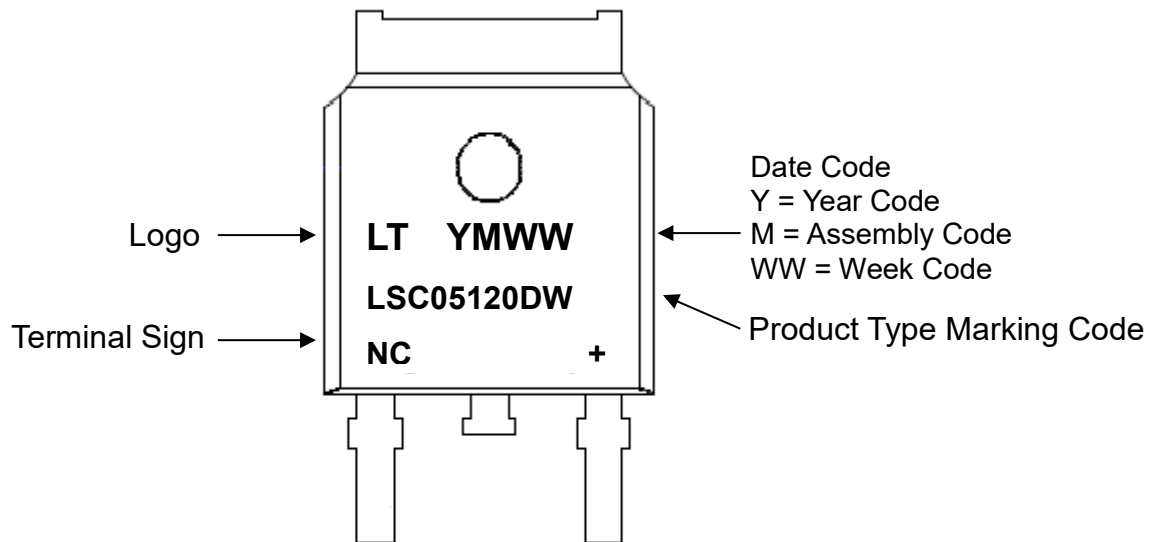
All dimension in millimeter



**Ordering Information:**

Part Number	Package	Packing	
		Qty.	Carrier
LSC05120DW	DPAK	2500pcs	Tape & Reel

**Marking Information:**



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