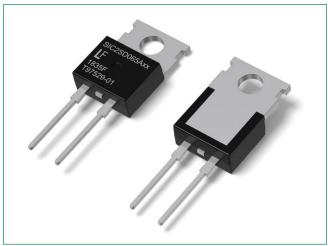


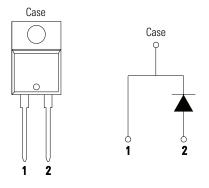
# LSIC2SD065A10A 650 V, 10 A SiC Schottky Barrier Diode





\*Image for reference only, for details refer to Dimensions-Package

#### Circuit Diagram TO-220-2L



#### **Description**

This series of silicon carbide (SiC) Schottky diodes has negligible reverse recovery current, high surge capability, and a maximum operating junction temperature of 175 °C. These diodes series are ideal for applications where improvements in efficiency, reliability, and thermal management are desired.

#### **Features**

- AEC-Q101 qualified
- Positive temperature coefficient for safe operation and ease of paralleling
- 175 °C maximum operating junction temperature
- Excellent surge capability
- Extremely fast, temperature-independent switching behavior
- Dramatically reduced switching losses compared to Si bipolar diodes

#### **Applications**

- Boost diodes in PFC or DC/DC stages
- Switch-mode power supplies
- Uninterruptible power supplies
- Solar inverters
- Industrial motor drives
- EV charging stations

#### **Environmental**

- Littelfuse "RoHS" logo = RoHS RoHS conform
- Littelfuse "HF" logo =**HF**Halogen Free
- Littelfuse "Pb-free" logoPb-free lead plating



#### **Maximum Ratings**

Characteristics	Symbol	Conditions	Value	Unit	
Repetitive Peak Reverse Voltage	V <sub>RRM</sub>	V <sub>RRM</sub> -		V	
DC Blocking Voltage	V <sub>R</sub>	T <sub>J</sub> = 25 °C	650	V	
Continuous Forward Current		T <sub>c</sub> = 25 °C	27	A	
	I <sub>F</sub>	T <sub>C</sub> = 135 °C	12.5		
		T <sub>c</sub> = 147 °C 10			
Non-Repetitive Forward Surge Current	I <sub>FSM</sub>	$T_{\rm C}$ = 25 °C, $T_{\rm P}$ = 10 ms, Half sine pulse	48	А	
Power Dissipation	P <sub>Tot</sub>	T <sub>C</sub> = 25 °C	100	\A/	
		T <sub>c</sub> = 110 °C 43		W	
Operating Junction Temperature	T <sub>J</sub>	-	-55 to 175	°C	
Storage Temperature	T <sub>stg</sub>	-	-55 to 150	°C	
Soldering Temperature	T <sub>SOLD</sub>	-	260	°C	



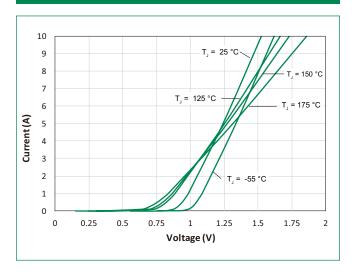
## Electrical Characteristics (T<sub>J</sub> =25 °C unless otherwise specified)

Characteristics Symb		Conditions	Value			Unit	
Characteristics	Symbol	Conditions	Min.	Тур.	Max.	Unit	
Forward Voltage	V <sub>F</sub>	I <sub>F</sub> = 10 A, T <sub>J</sub> = 25 °C	-	1.5	1.8	V	
		I <sub>F</sub> = 10 A, T <sub>J</sub> = 175 °C	-	1.85	-		
Reverse Current	I <sub>R</sub>	$V_R = 650 \text{ V}$ , $T_J = 25 \text{ °C}$	-	<1	50	μА	
		$V_{R} = 650  \text{V}, T_{J} = 175  ^{\circ}\text{C}$	-	25	-		
Total Capacitance	С	$V_R = 1 \text{ V, f} = 1 \text{ MHz}$	-	470	-		
		V <sub>R</sub> = 200 V, f = 1 MHz	-	60	-	pF	
		V <sub>R</sub> = 400 V, f = 1 MHz	-	43	-		
Total Capacitive Charge	Q <sub>c</sub>	$V_{R} = 400 \text{ V, } Q_{c} = \int_{0}^{V_{R}} C(V)dV$	-	30	-	nC	

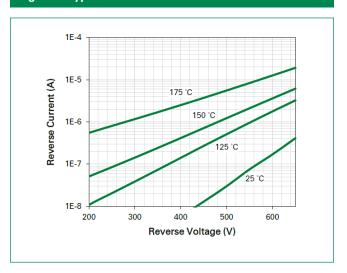
#### Thermal Characteristics

Characteristics	Symbol	Value	Unit
Thermal Resistance	Rair	1.5	°C/W

#### **Figure 1: Typical Foward Characteristics**



#### **Figure 2: Typical Reverse Characteristics**





**Figure 3: Power Derating** 

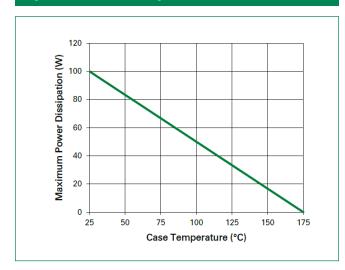


Figure 4: Current Derating

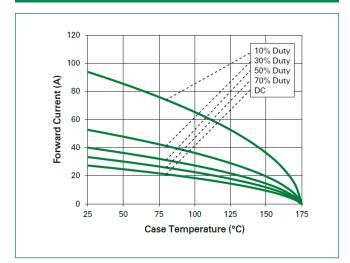


Figure 5: Capacitance vs. Reverse Voltage

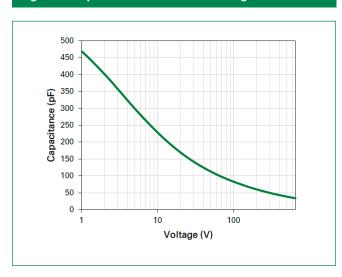


Figure 6: Capacitive Charge vs. Reverse Voltage

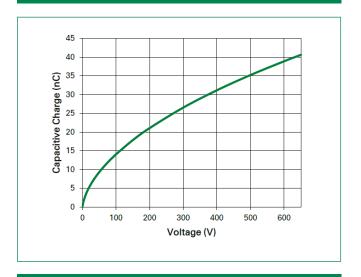


Figure 7: Stored Energy vs. Reverse Voltage

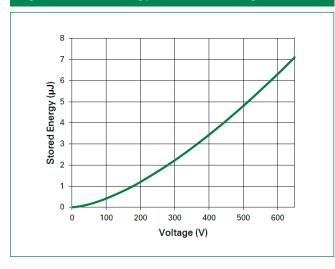
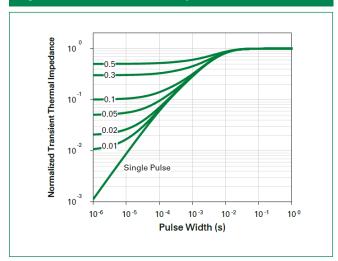
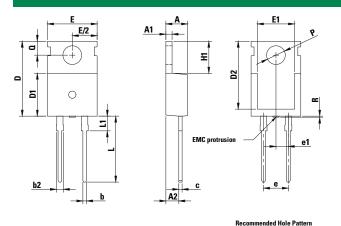


Figure 8: Transient Thermal Impedance

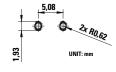


# **GEN2 SiC Schottky Diode** LSIC2SD065A10A, 650V, 10A, TO-220-2L

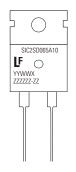
#### Dimensions-Package TO-220-2L



	Millimeters				
Min	Nom	Max			
4.30	4.45	4.70			
1.14	1.27	1.40			
2.20	-	2.74			
0.69	-	0.90			
1.17	-	1.62			
0.36	-	0.60			
14.90	-	15.90			
8.62	-	9.40			
12.50	-	12.95			
9.70	10.18	10.36			
7.57	7.61	8.30			
-	2.54	-			
5.03	5.08	5.13			
6.30	6.55	6.80			
12.88	13.50	14.00			
2.39	-	3.25			
3.50	3.84	3.96			
2.65	-	3.05			
-	-	0.25			
	4.30 1.14 2.20 0.69 1.17 0.36 14.90 8.62 12.50 9.70 7.57 - 5.03 6.30 12.88 2.39 3.50 2.65	4.30     4.45       1.14     1.27       2.20     -       0.69     -       1.17     -       0.36     -       14.90     -       8.62     -       12.50     -       9.70     10.18       7.57     7.61       -     2.54       5.03     5.08       6.30     6.55       12.88     13.50       2.39     -       3.50     3.84       2.65     -			



#### **Part Numbering and Marking System**



SIC = SiC Diode
2 = Gen2
SD = Schottky Diode
065 = Voltage Rating (650 V)
A = T0-220 Package (2 Lead)
10 = Current Rating (10 A)
YY = Year
WW = Week
X = Special Code

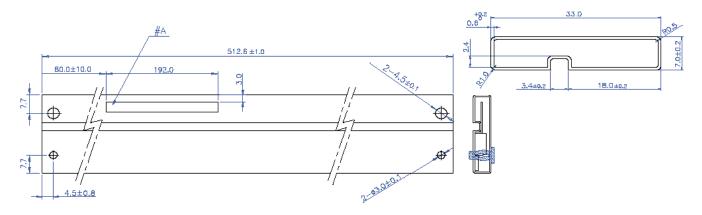
ZZZZZZ-ZZ = Lot Number

### **Packing Options**

Part Number	Marking	Packing Mode	M.O.Q
LSIC2SD065A10A	SIC2SD065A10	Tube(50pcs)	1000

# **GEN2 SiC Schottky Diode** LSIC2SD065A10A, 650V, 10A, TO-220-2L

#### Packing Specification (Tube for TO-220-2L)



#### [ NOTE ]

- 1. TUBE MATERIAL : PVC / PET (WITH ANTISTATIC COATING)
  - COLOR: TRANSPARENCY, RED, YELLO
  - MARKING #A : BLACK COLOR, LETTER STYLE : Arial
  - Tube Surface Resistance  $:10^6 \sim 10^{11} \,\Omega$ /square
  - ESD (Electro Static Discharge) : less than 100 [volts], 6 Months
  - CAMBAR : 1.5 MAX
- 2. PIN COLOR : GREEN (ONE PIN MUST BE INSERTED IN LEFT-SIDE OF "  $\square$  ANTISTATIC~" AND ANOTHER PIN IS FREE.)