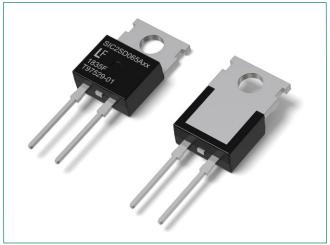


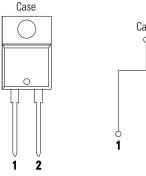
# LSIC2SD065A08A 650 V, 8 A SiC Schottky Barrier Diode

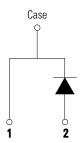




\*Image for reference only, for details refer to Dimensions-Package.

### 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" logo = Pb-free lead plating



#### **Maximum Ratings**

Characteristics	Symbol	Conditions	Value	Unit	
Repetitive Peak Reverse Voltage	V <sub>RRM</sub>	-	650	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	23		
	I <sub>F</sub>	T <sub>c</sub> = 135 °C	10.7	А	
		T <sub>C</sub> = 150 °C	8		
Non-Repetitive Forward Surge Current	I <sub>FSM</sub>	$T_{\rm C}$ = 25 °C, $T_{\rm P}$ = 10 ms, Half sine pulse	40	А	
Power Dissipation	-	T <sub>c</sub> = 25 °C	88	W	
	$P_{Tot}$	T <sub>C</sub> = 110 °C	38		
Operating Junction Temperature	T	-	-55 to 175	°C	
Storage Temperature	T <sub>STG</sub>	-	-55 to 150	°C	
Soldering Temperature	T <sub>SOLD</sub>	-	260	°C	

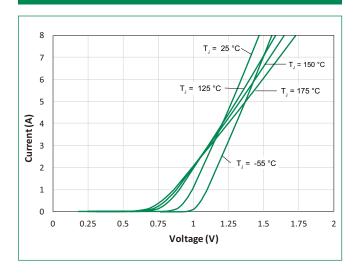


#### Electrical Characteristics (T, =25 °C unless otherwise specified)

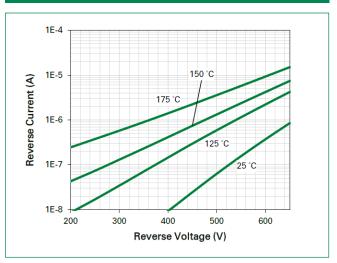
Characteristics	Symbol	Conditions	Value		Unit	
Citaracteristics	Зунион	Symbol Conditions		Тур.	Max.	Unit
Forward Voltage	V <sub>F</sub>	I <sub>F</sub> = 8 A, T <sub>J</sub> = 25 °C	-	1.5	1.8	V
		I <sub>F</sub> = 8 A, T <sub>J</sub> = 175 °C	-	1.85	-	
Reverse Current	I <sub>R</sub>	$V_{R} = 650  \text{V}, T_{J} = 25  ^{\circ}\text{C}$	-	<1	50	μΑ
		$V_{R} = 650  \text{V}$ , $T_{J} = 175  ^{\circ}\text{C}$	-	15	-	
Total Capacitance	С	V <sub>R</sub> = 1 V, f = 1 MHz	-	415	-	pF
		$V_R = 200 \text{ V, f} = 1 \text{ MHz}$	-	56	-	
		$V_R = 400 \text{ V}, \text{ f} = 1 \text{ MHz}$	-	41	-	
Total Capacitive Charge	$Q_c$	$V_{R} = 400 \text{ V}, Q_{c} = \int_{0}^{0} \frac{V_{R}}{C(V)} dV$	-	29	-	nC

Thermal Characteristics				
Characteristics	Symbol	Value	Unit	
Thermal Resistance	Rayo	1.7	°C/W	

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



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





**Figure 3: Power Derating** 

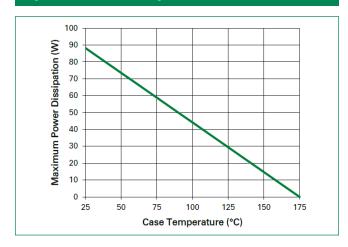


Figure 4: Current Derating

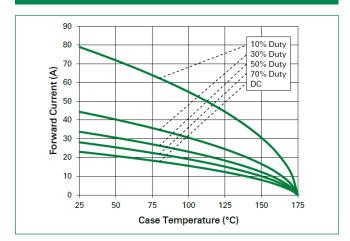


Figure 5: Capacitance vs. Reverse Voltage

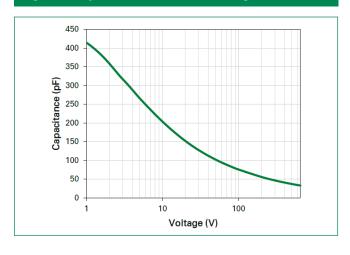


Figure 6: Capacitive Charge vs. Reverse Voltage

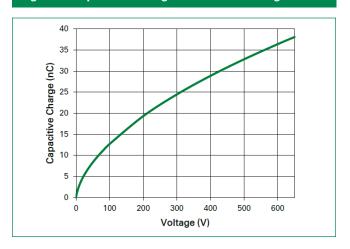


Figure 7: Stored Energy vs. Reverse Voltage

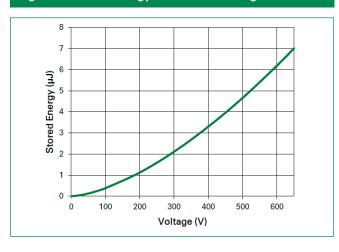
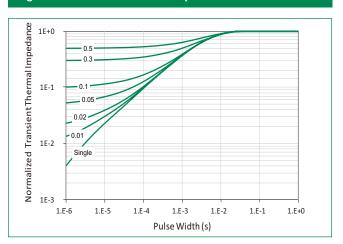
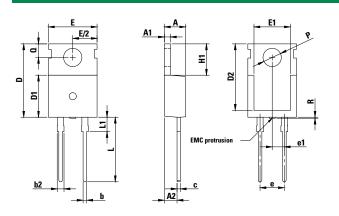


Figure 8: Transient Thermal Impedance



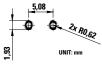


## Dimensions-Package TO-220-2L

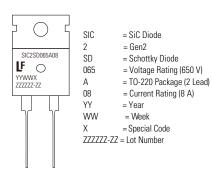


Complete	Millimeters				
Symbol	Min	Nom	Max		
Α	4.30	4.45	4.70		
A1	1.14	1.27	1.40		
A2	2.20	-	2.74		
b	0.69	-	0.90		
b2	1.17	-	1.62		
С	0.36	-	0.60		
D	14.90	-	15.90		
D1	8.62	-	9.40		
D2	12.50	-	12.95		
E	9.70	10.18	10.36		
E1	7.57	7.61	8.30		
e1	-	2.54	-		
е	5.03	5.08	5.13		
H1	6.30	6.55	6.80		
L	12.88	13.50	14.00		
L1	2.39	-	3.25		
øΡ	3.50	3.84	3.96		
Q	2.65	-	3.05		
R	-	-	0.25		





## **Part Numbering and Marking System**

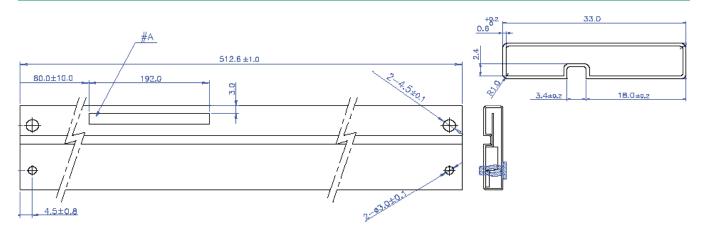


## **Packing Options**

Part Number	Marking	Packing Mode	M.O.Q	
LSIC2SD065A08A	SIC2SD065A08	Tube(50pcs)	1000	

# **GEN2 SiC Schottky Diode** LSIC2SD065A08A, 650V, 8A, TO-220-2L

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



#### NOTE ]

- MATERIAL : PVC / PET (WITH ANTISTATIC COATING)

- COLOR : TRANSPARENCY, RED, YELLO

- MARKING #A : BLACK COLOR, LETTER STYLE : Arial

- Tube Surface Resistance  $:10^6 \sim 10^{11} \,\Omega\,/\,\text{square}$ 

- ESD (Electro Static Discharge) : less than 100 [volts], 6 Months

- CAMBAR : 1.5 MAX

PIN - COLOR : GREEN (ONE PIN MUST BE INSERTED IN LEFT-SIDE OF "  $\Box$  ANTISTATIC~" AND ANOTHER PIN IS FREE.)