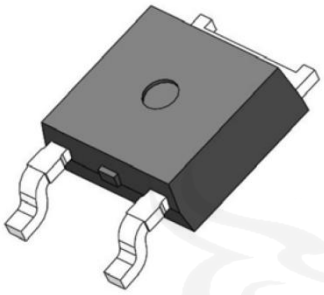
ASDCO65B008L1

650V SiC Schottky Diode

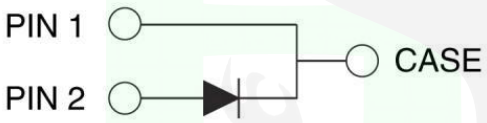
Datasheet - Production Data

1. Descriptions

TO-252



SiC Schottky Diode



Key Performance Parameters

Parameters	Value	Unit
V_{DC}	650	V
I_F (T_C ≤163°C)	8	A
Q_C	39	nC

Features

- Zero Reverse Recovery Current
- Zero Forward Recovery Voltage
- Positive Temperature Coefficient on V_F
- Temperature Independent Switching Behavior
- 175℃ Operating junction temperature
- 100% UIS Tested
- High Surge Current
- This Device is Halide Free and RoHS Compliant

Applications

- Switch Mode Power Supply
- Power Factor Correction
- Motor Drive, PV Inverter, Wind Power Station

Type/Ordering Code	Package	Marking	Related Links
ASDCO65B008L1	TO-252	ASDCO65B008L1	See Appendix A

Contents

1. Descriptions 1
2. Maximum Ratings 3
3. Thermal Characteristics 3
4. Electrical Characteristics 3
5. Electrical Characteristics Diagrams 4
6. Package Outlines 6

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2. Maximum Ratings

Table 1. Maximum Ratings

Symbol	Parameter	Values			Unit	Test Condition
		Min.	Typ.	Max.		
V_{RRM}	Repetitive Peak Reverse Voltage	650	-	-	V	T_C=25°C
I_F	Forward Current	- - -	- - -	28 14 8	A	T_C<=25°C T_C<=135°C T_C<=164°C
I_{FSM}	Non-Repetitive Forward Surge Current	-	-	100	A	T_C=25°C, t_P=8.3ms, Half Sine Wave
P_{tot}	Power Dissipation	-	-	125	W	T_C=25°C
E_{AS}	Single Pulse Avalanche Energy			229	mJ	T_C=25°C,L=1mH,V=100V,I_{AS}=21.4A
T_J, T_{stg}	Operating and Storage Temperature	-55	-	175	°C	–
	TO-252 Mounting Torque			1	Nm	M3 Screw

3. Thermal Characteristics

Table 2. Thermal Characteristics

Symbol	Parameter	Values			Unit	Test Condition
		Min.	Typ.	Max.		
R_{thJC}	Thermal Resistance, Junction - Case	-	1.2	-	°C/W	T_C = 25°C
R_{thJA}	Thermal Resistance, Junction - Ambient	-	60	-	°C/W	T_C = 25°C
T_{sold}	Soldering Temperature, Wavesoldering Only Allowed at Leads	-	260	-	°C	Soldering, 10 sec

4. Electrical Characteristics

At T_J= 25°C, unless otherwise specified

Table 3. Static Characteristics

Symbol	Parameter	Values			Unit	Test Condition
		Min.	Typ.	Max.		
V_F	Forward Voltage	- -	1.23 1.31	1.45 1.6	V	I_F=8A, T_J=25°C I_F=8A, T_J=175°C
I_R	Reverse Current	- -	0.15 2.7	50 200	μA	V_R=650V, T_J=25°C V_R=650V, T_J=175°C
C	Total Capacitance	- - -	660 72 55	- - -	pF	V_R=0V, T_J=25°C, f=1MHz V_R=200V, T_J=25°C, f=1MHz V_R=400V, T_J=25°C, f=1MHz
Q_C	Total Capacitive Charge	-	39	-	nC	V_R=400V, I_F=8A di/dt=200A/μs, T_J=25°C

5. Electrical Characteristics Diagrams

Diagram 1: Power Dissipation

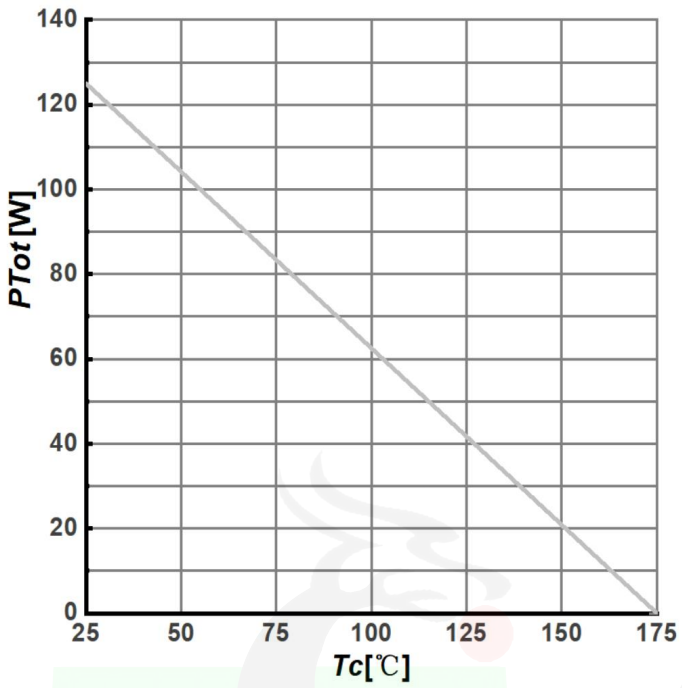


Diagram 2: Typical Forward Characteristics

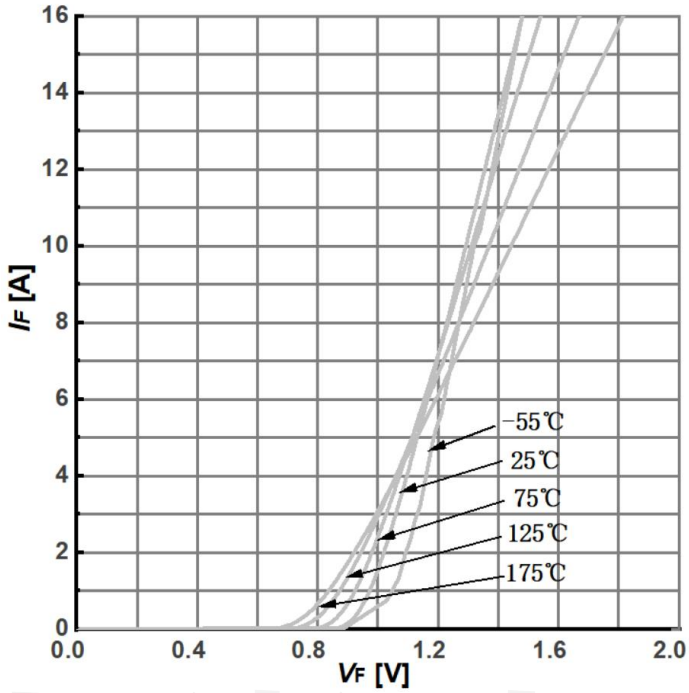


Diagram 3: Typical Reverse Characteristics

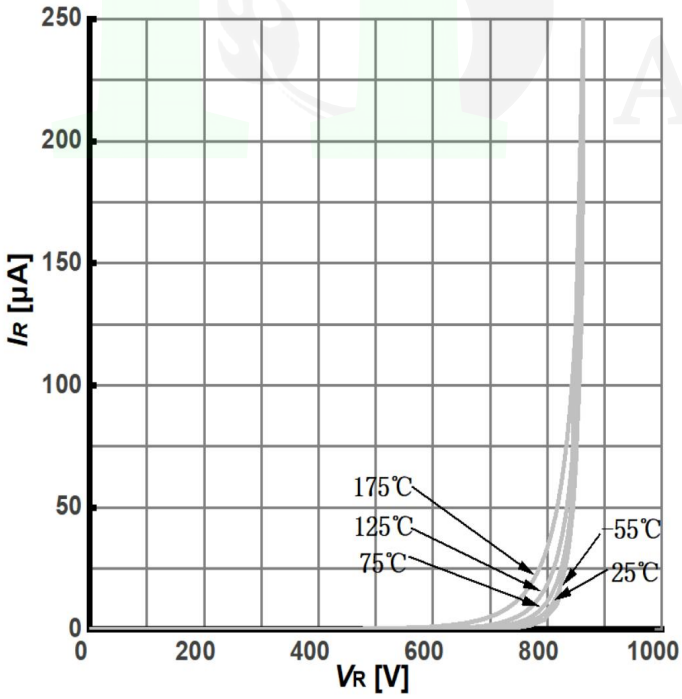


Diagram 4: Transient Thermal Impedance

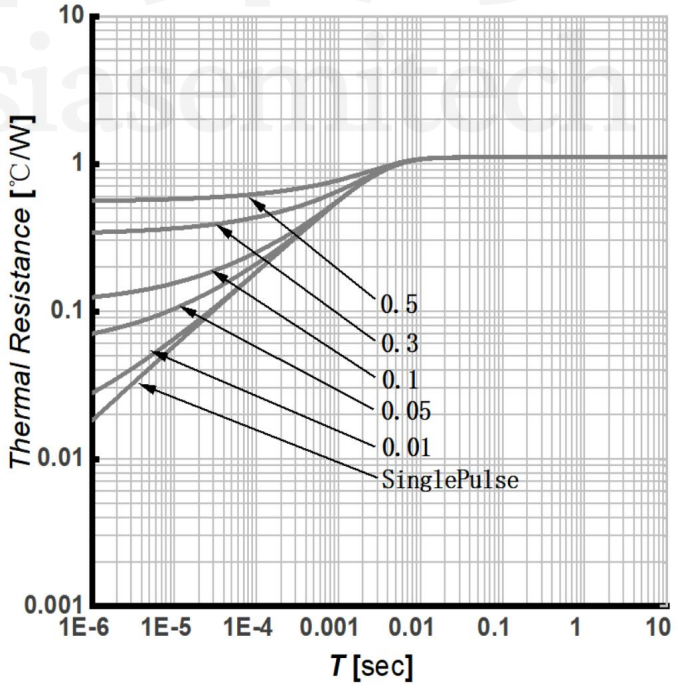
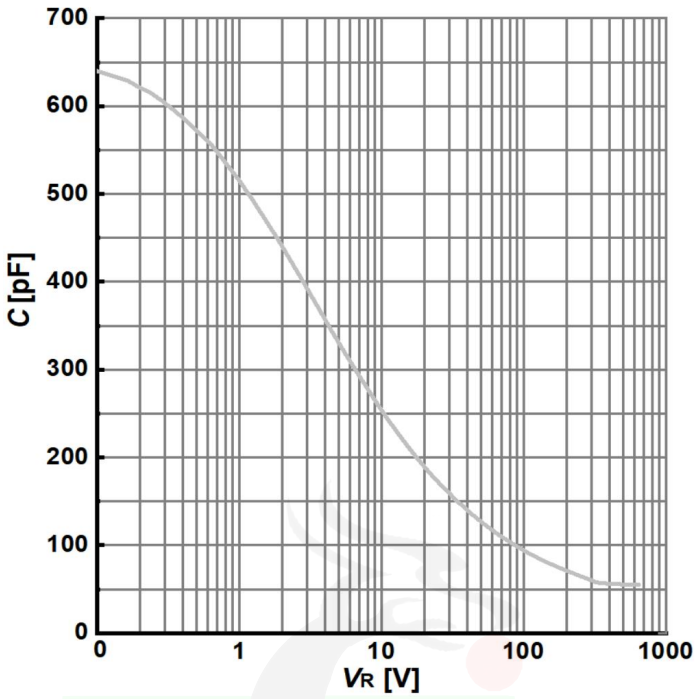
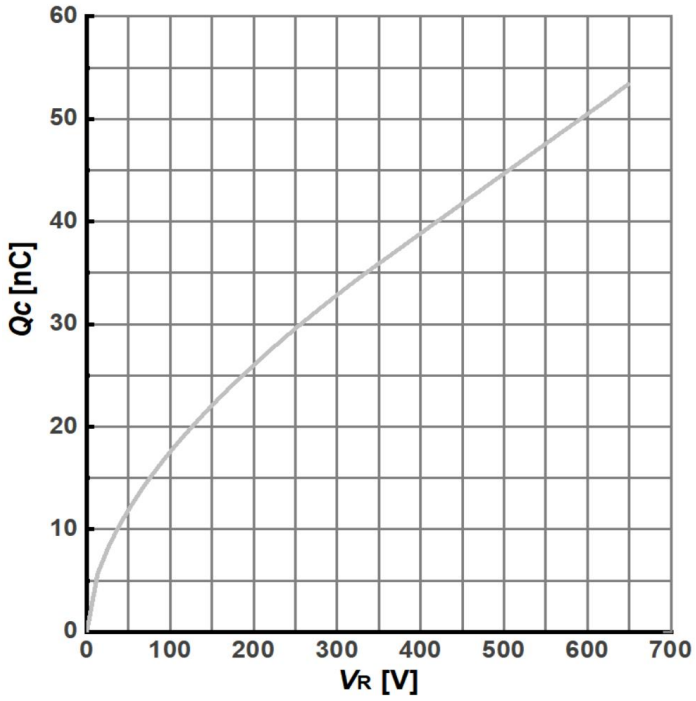


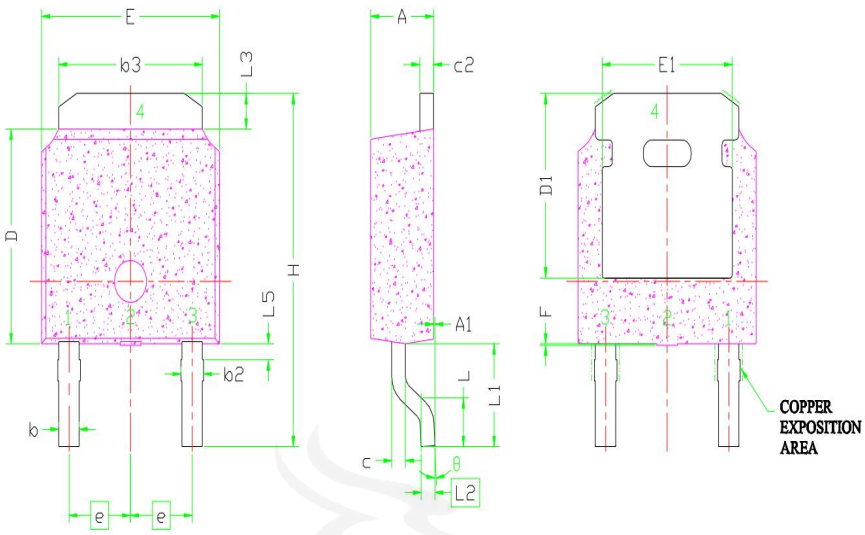
Diagram 5: Total Capacitance	Diagram 6: Total Capacitive Charge





6. Package Outlines

Figure 1 Outline TO-252 Dimensions in mm



SYMBOL	DIMENSIONAL REQMTS		
	MIN	NOM	MAX
E	6.40	6.60	6.731
L	1.40	1.52	1.77
L1	2.743 REF		
L2	0.508 BSC		
L3	0.89	--	1.27
L5	--	--	--
D	6.00	6.10	6.223
H	9.40	10.00	10.40
b	0.64	0.76	0.88
b2	0.77	0.84	1.14
b3	5.21	5.34	5.46
e	2.286 BSC		
A	2.20	2.30	2.38
A1	0	--	0.127
c	0.46	0.50	0.60
c2	0.46	0.50	0.58
D1	5.21	--	--
E1	4.40	--	--
F	--	--	0.45
θ	0°	--	10°