

TECHNICAL DATA
DATA SHEET 4142, Rev A

SILICON SCHOTTKY RECTIFIER DIE
Ultra Low Forward Voltage Drop
Typical Voltage Drop 0.30V

Applications:

- Switching Power Supply • Converters • Free-Wheeling Diodes • Polarity Protection Diode

Features:

- Ultra Low Forward Voltage Drop
- Soft Reverse Recovery at Low and High Temperature
- Low Power Loss, High Efficiency
- Very High Surge Capacity
- Guard Ring for Enhanced Durability and Long Term Reliability
- Guaranteed Reverse Avalanche Characteristics
- Electrically / Mechanically Stable during and after Packaging

Maximum Ratings⁽¹⁾:

Characteristics	Symbol	Condition	Max.	Units
Peak Inverse Voltage	V_{RWM}	-	20	V
Max. Average Forward Current	$I_{F(AV)}$	50% duty cycle, rectangular wave form	120	A
Max. Peak One Cycle Non-Repetitive Surge Current	I_{FSM}	8.3 msec, sine pulse	1650	A
Non-Repetitive Avalanche Energy	E_{AS}	$T_J = 25\text{ }^\circ\text{C}$, $I_{AS} = 3.7\text{ A}$ $L = 6.5\text{ mH}$	44.5	mJ
Repetitive Avalanche Current	I_{AR}	I_{AS} decay linearly to 0 in $1\text{ }\mu\text{s}$ f limited by T_J max $V_A = 1.5V_R$	3.7	A
Max. Junction Temperature	T_J	-	-55 to + 150	$^\circ\text{C}$
Max. Storage Temperature	T_{stg}	-	-55 to + 150	$^\circ\text{C}$

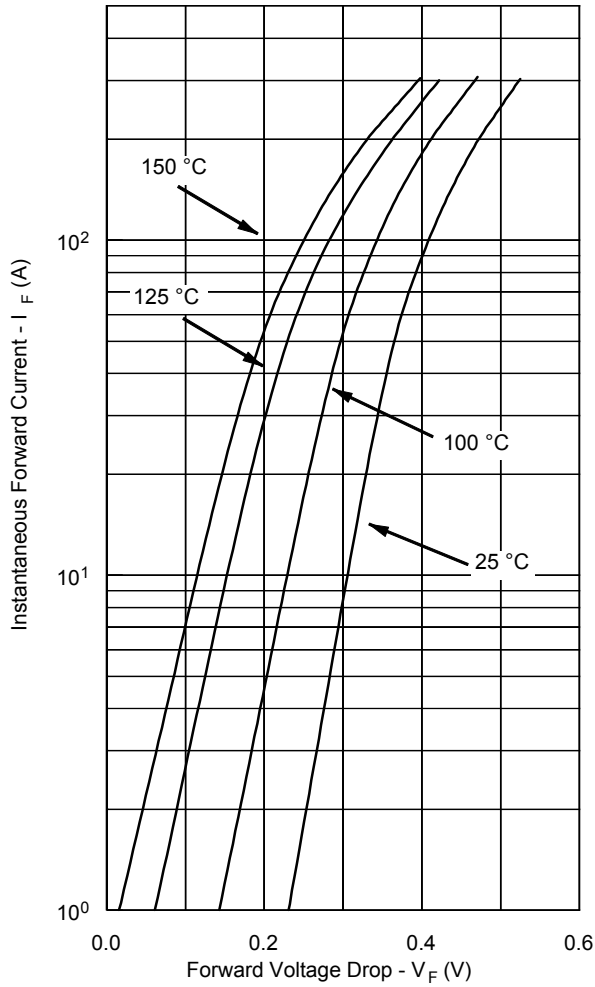
Electrical Characteristics⁽¹⁾:

Characteristics	Symbol	Condition	Typ.	Max.	Units
Max. Forward Voltage Drop	V_{F1}	@ 120A, Pulse, $T_J = 25\text{ }^\circ\text{C}$	0.42	0.48	V
	V_{F2}	@ 120A, Pulse, $T_J = 125\text{ }^\circ\text{C}$	0.30	0.35	V
	V_{F3}	@ 120A, Pulse, $T_J = 150\text{ }^\circ\text{C}$	0.27	0.32	V
Max. Reverse Current	I_{R1}	@ $V_R = 30\text{V}$, Pulse, $T_J = 25\text{ }^\circ\text{C}$	2.7	20.0	mA
	I_{R2}	@ $V_R = 30\text{V}$, Pulse, $T_J = 125\text{ }^\circ\text{C}$	2240	3000	mA
	I_{R3}	@ $V_R = 5\text{V}$, Pulse, $T_J = 100\text{ }^\circ\text{C}$	100	180	mA
Max. Junction Capacitance	C_T	@ $V_R = 5\text{V}$, $T_C = 25\text{ }^\circ\text{C}$ $f_{SIG} = 1\text{MHz}$, $I_{SIG} = 50\text{mV (p-p)}$	6684	8100	pF

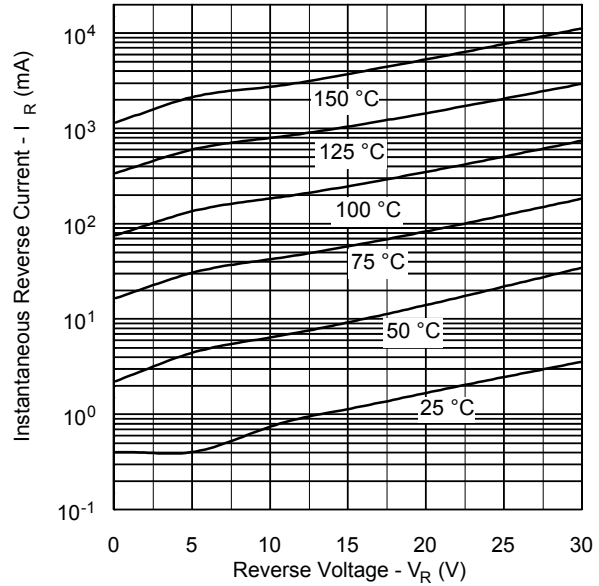
(1) in SHD package

TECHNICAL DATA
DATA SHEET 4142, Rev A

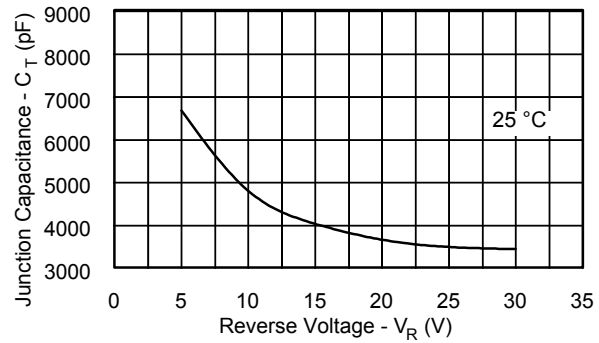
Typical Forward Characteristics



Typical Reverse Characteristics



Typical Junction Capacitance



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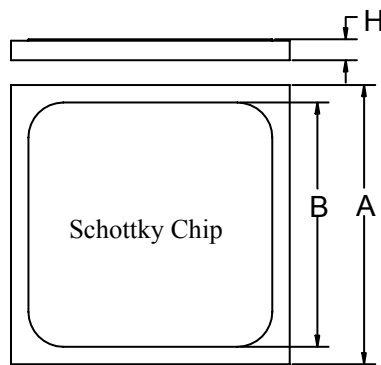
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DATA SHEET 4142, Rev A
Mechanical Dimensions: In Inches / mm


Figure 1

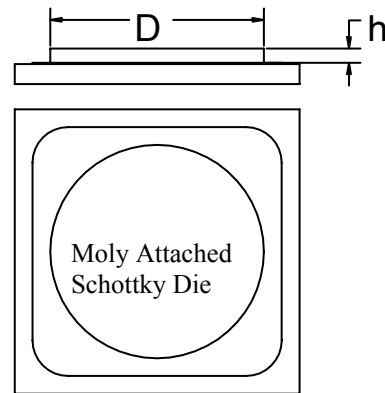


Figure 2

Top side (Anode) metallization:

A = Al - 25 kÅ minimum, Figure 1

B = Ag - 30 kÅ minimum, Figure 1

C = Au - 12 kÅ min, Figure 2

Bottom side (Cathode) metallization:

A, B, C = Ti/Ni/Ag - 30 kÅ minimum.

A	B	D	H	h
0.275±0.003	0.267±0.003	0.220±0.005	0.0155±0.001	0.011±0.002

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