Absolute Maximum Ratings

Rating	Symbol	Value	Units
Peak Pulse Power (tp = 8/20µs)	P_{PK}	350	W
Peak Pulse Power (tp = 1.2/50µs)	P_{PK}	225	W
Peak Pulse Current (tp = 1.2/50µs)	I_{PP}	4	A
Non-Repetitive Peak Forward Current (tp = 100µs)	I_{FSMAX}	4	A
Operating Temperature	T_J	-55to +125	^{O}C
Storage Temperature	T_{STG}	-55 to +150	^{O}C

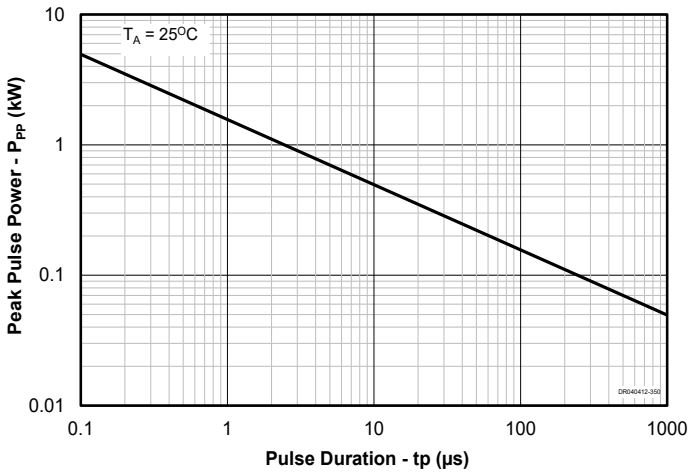
Electrical Characteristics (T=25^{O}C unless otherwise specified)

Parameter	Symbol	Conditions		Min.	Typ.	Max.	Units
Reverse Stand-Off Voltage	V_{RWM}	-40^{O}C to 125^{O}C, Pin 3 to Pin 1 or 2				33	V
Reverse Breakdown Voltage	V_{BR}	I_t = 1mA, Pin 3 to Pin 1 or 2		35			V
Reverse Leakage Current	I_R	V_{RWM} = 33V	T = 25^{O}C			5	µA
			T = 85^{O}C			25	µA
Clamping Voltage	V_C	I_{PP} = 2A, tp = 1.2/50µs				47	V
Forward Voltage	V_F	I_F = 100mA				1.3	V
Junction Capacitance	C_J	V_R = 0V, f = 1MHz, Pin 3 to Pin 1 or 2				120	pF

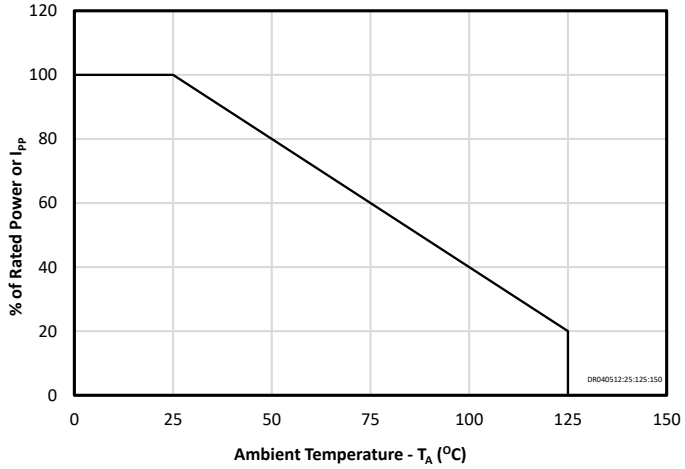
Notes:
(1): ESD Gun return path to Ground Reference Plane (GRP)
(2): Transmission Line Pulse Test (TLP) Settings: tp = 100ns, tr = 0.2ns, I_{TLP} and V_{TLP} averaging window: t_1 = 70ns to t_2 = 90ns.
(3): Dynamic resistance calculated from I_{TLP} = 4A to I_{TLP} = 16A.

Typical Characteristics

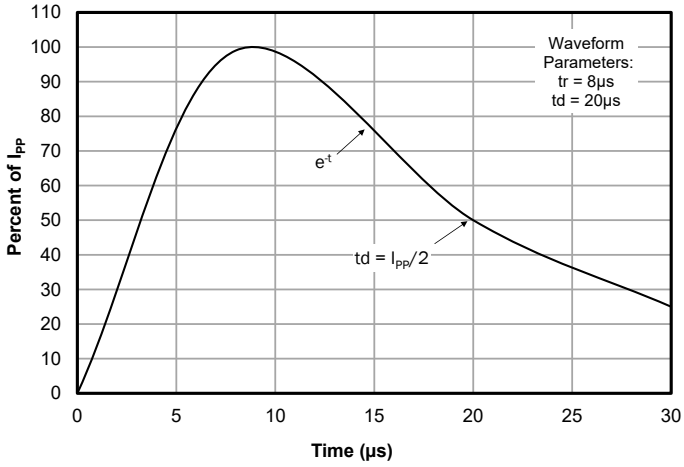
Non-Repetitive Peak Pulse Power vs. Pulse Time



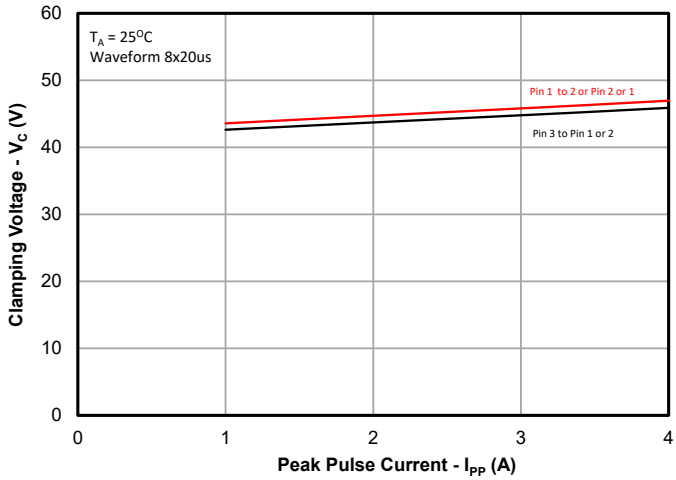
Power Derating Curve



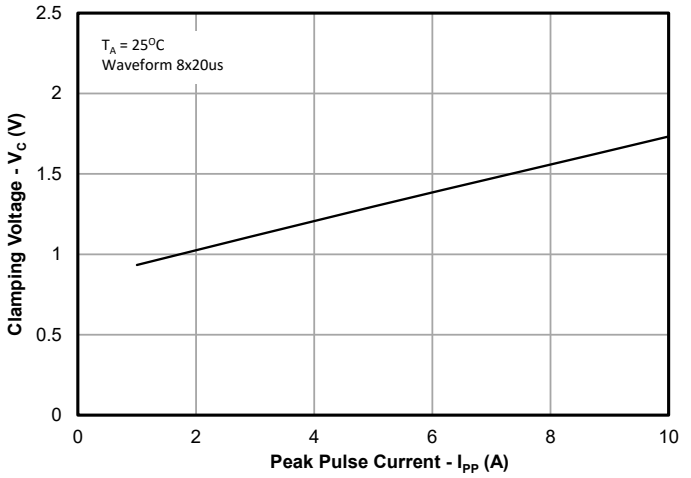
Pulse Waveform



Clamping Voltage vs. Peak Pulse Current (8/20µs Pulse)



Forward Voltage vs. Peak Pulse Current (8/20µs Pulse)



Application Information

Device Connection for Protection of Two, Three, and Four Wire Proximity Switches

Digital sensors help to bridge the gap between the physical world and the digital world in applications such as computer controlled factory automation. In such environments, transient voltages can easily disrupt or damage sensitive sensor inputs. The SDC36C provides transient voltage protection for the digital sensors to ensure their operation is not disrupted by the physical world.

The SDC36C is designed to meet the high surge capability and low clamping voltage needed to protect the ASIC and control logic used in proximity switches. The SDC36C provides protection for the power and I/O lines. Typical configurations for the protection of two, three, and four wire switches are as follows:

1. Two-Wire Switch: Connect pin 1 to the I/O line and pin 2 to the DC supply (since the device is symmetrical, these connections can be reversed). Pin 3 is not connected.

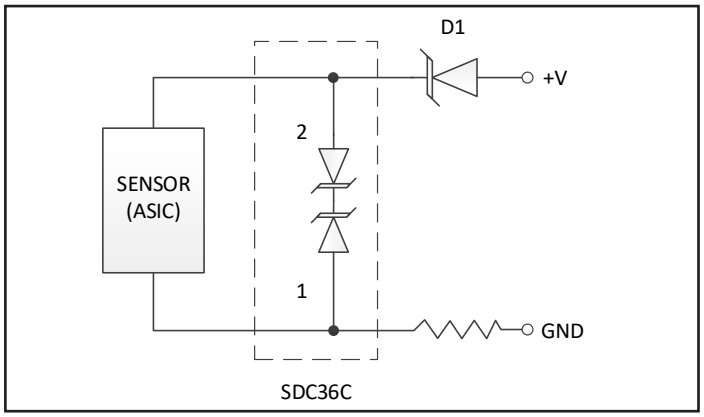
2. Three-Wire Switch: Either pin 1 or pin 2 is connected to the I/O line with the other connected to ground. Pin 3 must be connected to the DC supply.

3. Four-Wire Switch: Two device are required to protect four wire switches. Pin 3 of each device is connected to the DC supply line. Pins 1 and 2 are connected to the I/O lines and ground as shown.

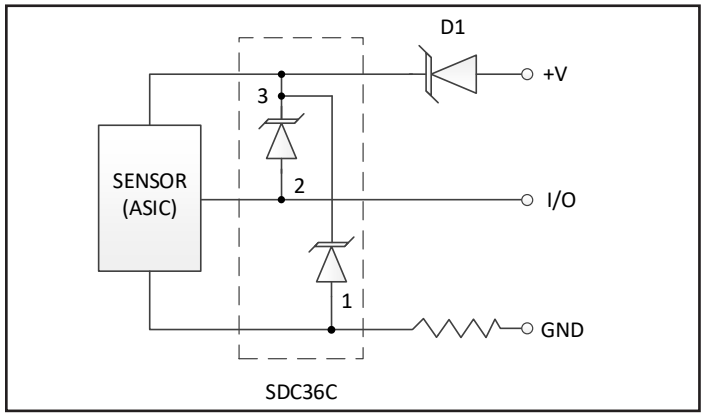
Matte Tin Lead Finish

Matte tin has become the industry standard lead-free replacement for SnPb lead finishes. A matte tin finish is composed of 100% tin solder with large grains. Since the solder volume on the leads is small compared to the solder paste volume that is placed on the land pattern of the PCB, the reflow profile will be determined by the requirements of the solder paste. Therefore, these devices are compatible with both lead-free and SnPb assembly techniques. In addition, unlike other lead-free compositions, matte tin does not have any added alloys that can cause degradation of the solder joint.

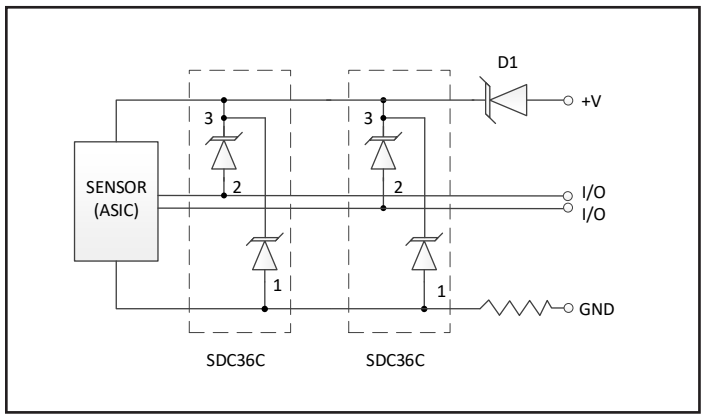
2-Wire DC Proximity Switch Application



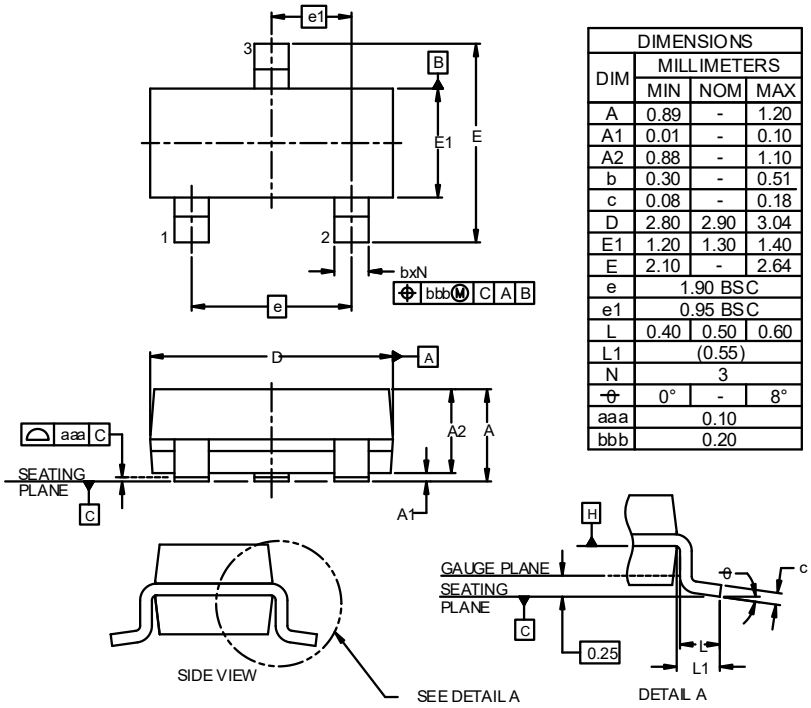
3-Wire DC Proximity Switch Application



4-Wire DC Proximity Switch Application



Outline Drawing - SOT23-3L

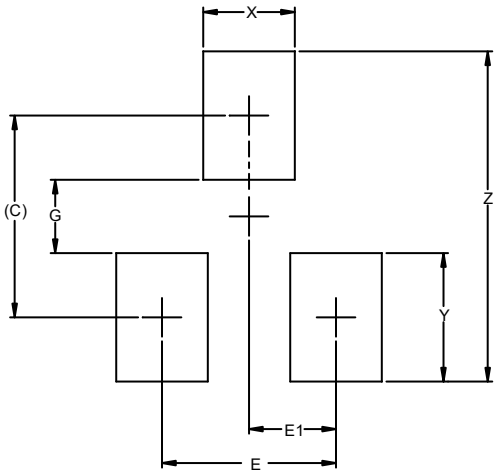


DIMENSIONS			
DIM	MILLIMETERS		
	MIN	NOM	MAX
A	0.89	-	1.20
A1	0.01	-	0.10
A2	0.88	-	1.10
b	0.30	-	0.51
c	0.08	-	0.18
D	2.80	2.90	3.04
E1	1.20	1.30	1.40
E	2.10	-	2.64
e	1.90 BSC		
e1	0.95 BSC		
L	0.40	0.50	0.60
L1	(0.55)		
N	3		
θ	0°	-	8°
aaa	0.10		
bbb	0.20		

NOTES:

1. CONTROLLING DIMENSIONS ARE IN MILLIMETERS (ANGLES IN DEGREES).
2. DATUMS -A- AND -B- TO BE DETERMINED AT DATUM PLANE -H-
3. DIMENSIONS "E1" AND "D" DO NOT INCLUDE MOLD FLASH, PROTRUSIONS OR GATE BURRS.

Land Pattern - SOT23-3L

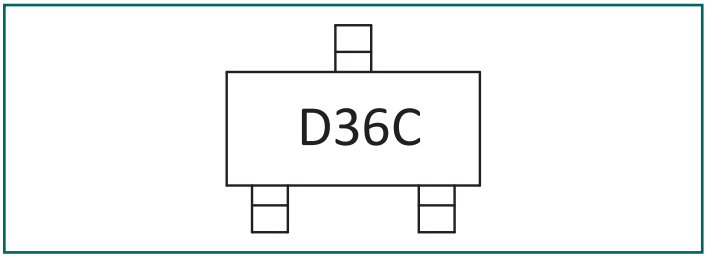


DIMENSIONS	
DIM	MILLIMETERS
C	(2.20)
G	0.80
E1	0.95
E	1.90
X	1.00
Y	1.40
Z	3.60

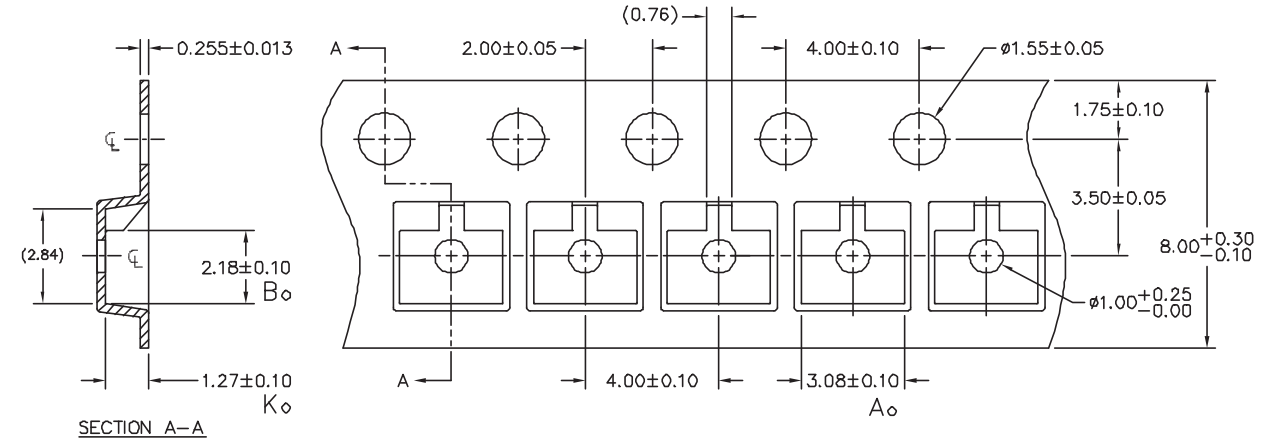
NOTES:

1. CONTROLLING DIMENSIONS ARE IN MILLIMETERS (ANGLES IN DEGREES).
2. THIS LAND PATTERN IS FOR REFERENCE PURPOSES ONLY CONSULT YOUR MANUFACTURING GROUP TO ENSURE YOUR COMPANY'S MANUFACTURING GUIDELINES ARE MET.
3. REFERENCE IPC-SM-782A.

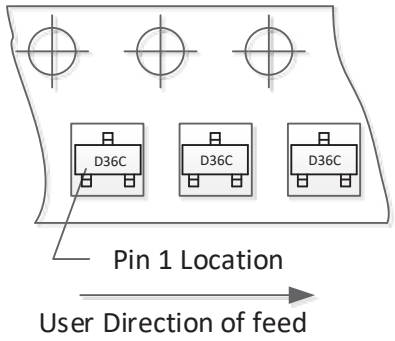
Marking Code



Tape and Reel Specification



NOTES: 1.) ALL DIMENSIONS IN MILLIMETERS UNLESS OTHERWISE SPECIFIED.



Ordering Information

Part Number	Qty per Reel	Reel Size	Pitch
SDC36C.TCT	3000	7 Inch	4mm

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