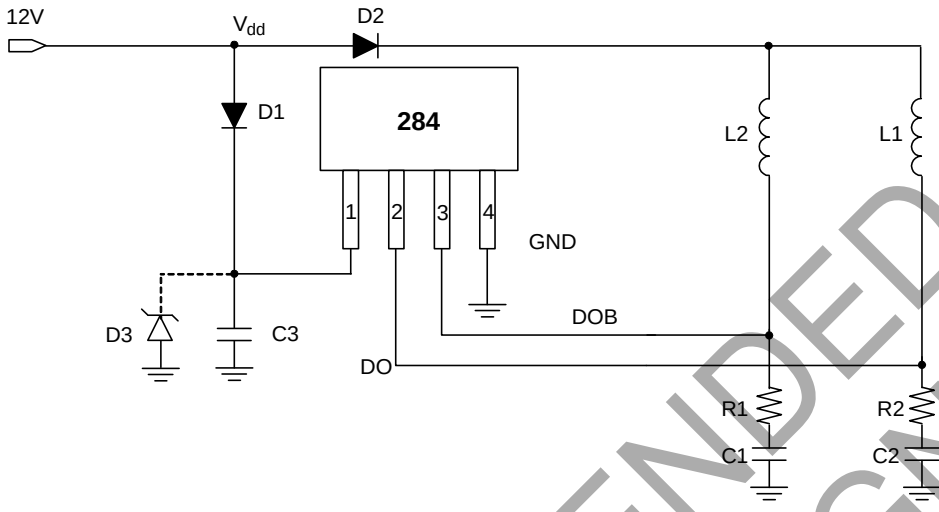
Typical Application Circuit (Note 4)

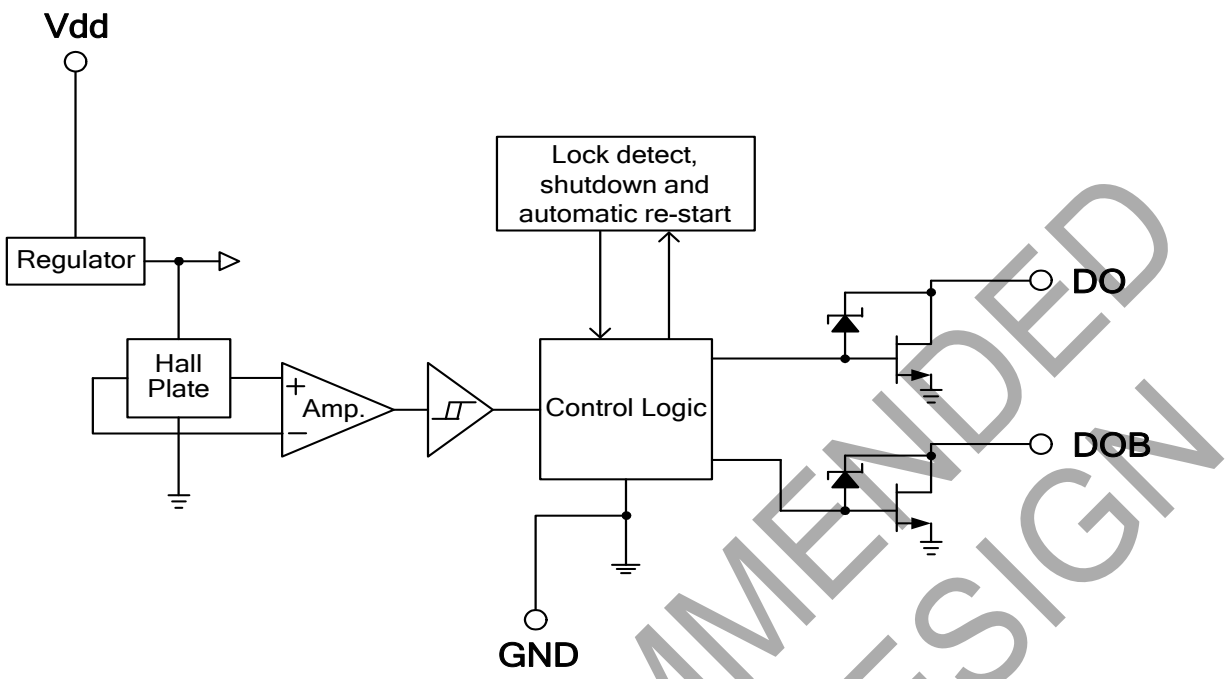


Note: 4. Typically it is recommended to us a 56Ω resistor for R1 and R2 and a 2.2μF E-Cap capacitor for C1, C2 and C3. These values may need to be optimized depending on the coils used.
To help with IC protection it's advised to add a Zener diode between Vdd and ground. The Zener diode should be chosen to help prevent the supply voltage exceeding the maximum rating of the device.

Pin Descriptions

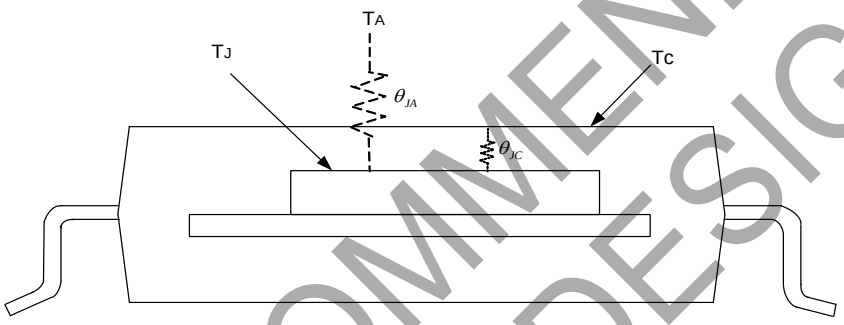
Pin Name (SOT89-5)	Description
Vdd	Input Power
DO	Output Pin
DOB	Output Pin
GND	Ground
NC	Not Connected

Functional Block Diagram



Absolute Maximum Ratings (T_A = +25°C)

Symbol	Characteristics			Rating	Unit
V_{DD}	Supply Voltage			24	V
I_O	Output Current	$I_{O(AVE)}$	SIP-4	500	mA
			SOT89-5	500	mA
		$I_{O(PEAK)}$		700	mA
P_D	Power Dissipation	SIP-4		550	mW
		SOT89-5		800	mW
T_{ST}	Storage Temperature			-55 to +150	°C
T_J	Maximum Junction Temperature			+150	°C
θ_{JA}	Thermal Resistance Junction to Case (Note 5)	SIP-4		227	°C/W
		SOT89-5		156	°C/W



Note: 5. θ_{JA} should be confirmed with heat sink thermal resistance. If there is no heat sink contact, θ_{JA} will almost be the same as θ_{JC}.

Recommended Operating Conditions

Symbol	Characteristic	Conditions	Min	Max	Unit
V_{DD}	Supply Voltage	Operating	3.8	20	V
T_A	Operating Ambient Temperature	Operating	-40	+100	°C

Electrical Characteristics (T_A = +25°C, V_{DD} = 12V, unless otherwise specified.)

Symbol	Characteristics	Conditions	Min	Typ.	Max	Unit
I_{DD}	Supply Current	Operating	-	2.0	4.0	mA
I_{OFF}	Output Leakage Current	V_{OUT} = 24V	-	< 0.1	10	μA
t_{RLP-ON}	Rotor Lock Protection On Time	-	0.4	0.5	0.6	Sec
$t_{RLP-OFF}$	Rotor Lock Protection Off Time	-	2.4	3	3.6	Sec
$V_{OUT(SAT)}$	Output Saturation Voltage	I_O = 300mA	-	375	500	mV
		I_O = 500mA	-	625	900	
$R_{DS(ON)}$	Output On Resistance	I_O = 300mA	-	1.25	1.67	Ω
V_Z	Output Zener-Breakdown Voltage	-	35	42	60	V

Truth Table

IN-	IN+	CT	OUT1	OUT2	Mode
H	L	L	H	L	Rotating
L	H	L	L	H	Rotating
-	-	H	Off	Off	Lockup protection activated

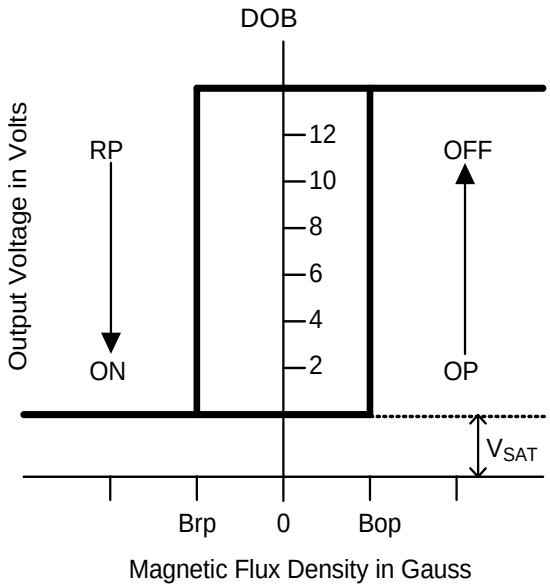
Magnetic Characteristics (T_A = +25°C, V_{DD} = 12V, unless otherwise specified, Note 6)

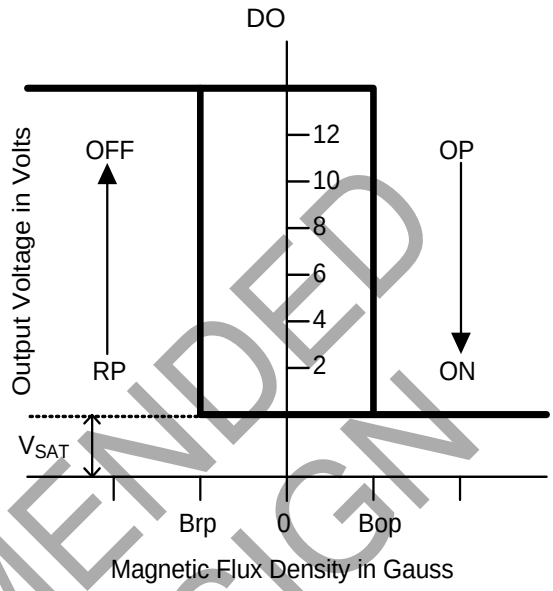
(1mT = 10 Gauss)

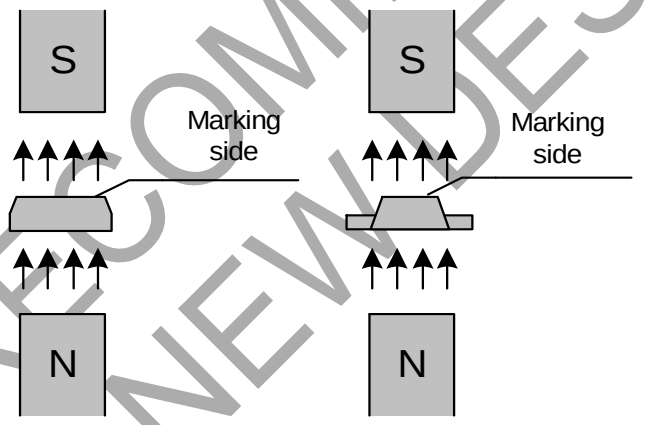
Symbol	Characteristics	Min	Typ.	Max	Unit
Bop	Operation Point	10	30	60	Gauss
Brp	Release Point	-60	-30	-10	Gauss
Bhy	Hysteresis	-	60	-	Gauss

Note: 6. The magnetic characteristics may vary with supply voltage, operating temperature and after soldering.

Operating Characteristics





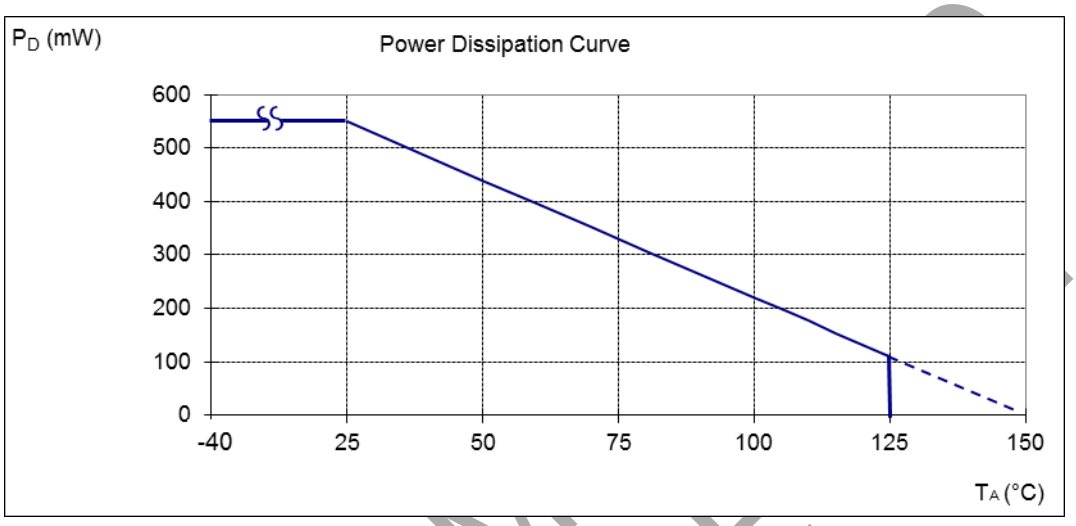


(SIP-4) **(SOT89-5)**

Performance Characteristics

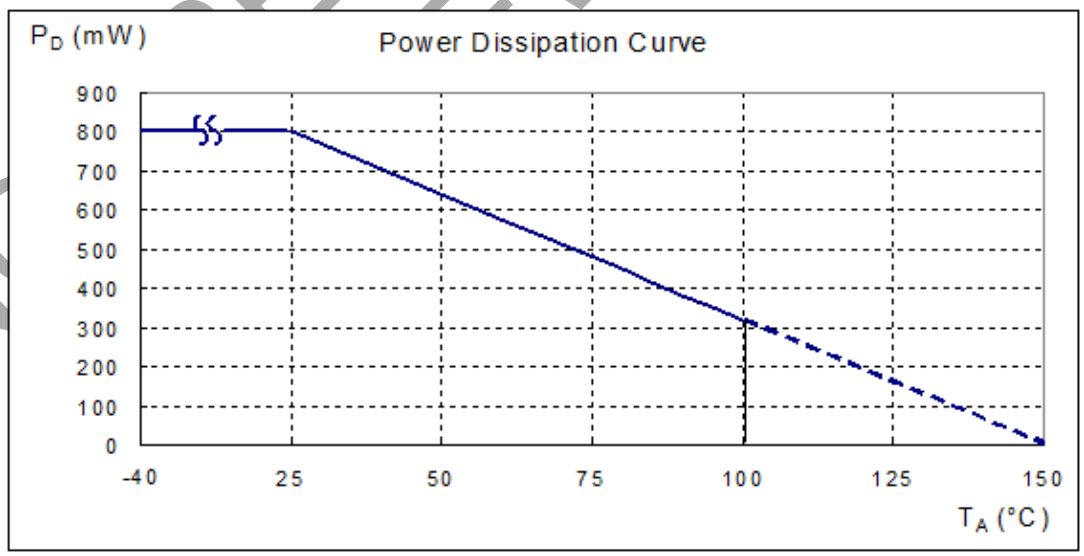
(1) SIP-4

T_A (°C)	25	50	60	70	80	85	90	95	100
P_D (mW)	550	440	396	352	308	286	264	242	220
T_A (°C)	**105**	**110**	**115**	**120**	**125**	**130**	**135**	**140**	**150**
P_D (mW)	198	176	154	132	110	88	66	44	0

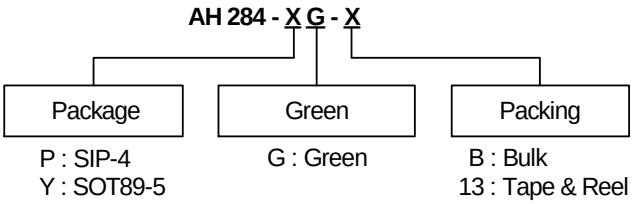


(2) SOT89-5

T_A (°C)	25	50	60	70	75	80	85	90	95	100
P_D (mW)	800	640	576	512	480	448	416	384	352	320
T_A (°C)	**105**	**110**	**115**	**120**	**125**	**130**	**135**	**140**	**145**	**150**
P_D (mW)	288	256	224	192	160	128	96	64	32	0



Ordering Information

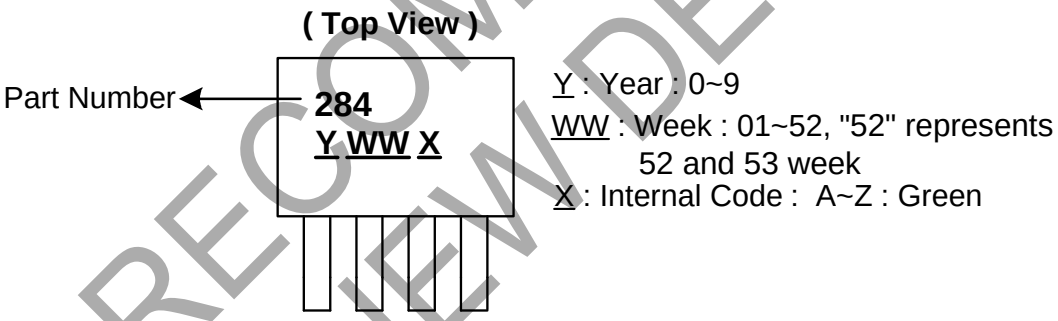


Device	Status (Note 9)	Package Code	Packaging (Note 7, 8)	Bulk		13" Tape and Reel	
				Quantity	Part Number Suffix	Quantity	Part Number Suffix
AH284-PG-B	NRND	P	SIP-4	1000	-B	NA	NA
AH284-YG-13	NRND	Y	SOT89-5	NA	NA	2500/Tape & Reel	-13

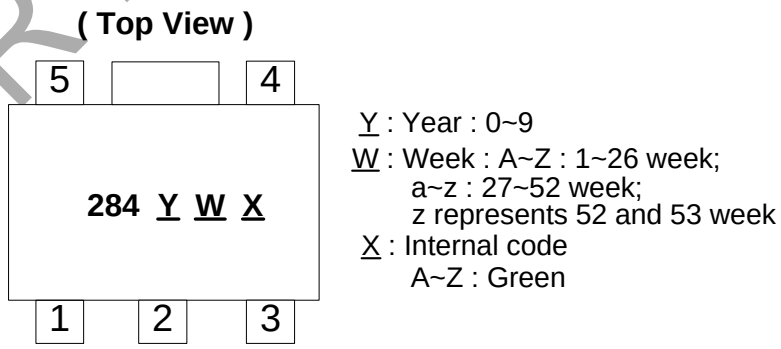
Notes: 7. Pad layout as shown on Diodes Incorporated's suggested pad layout document, which can be found on our website at http://www.diodes.com/package-outlines.html.
8. Reverse taping as shown on Diodes Incorporated's Surface Mount (SMD) Packaging document AP02007, which can be found on our website http://www.diodes.com/datasheets/ap02007.pdf.
9. NRND = Not Recommended for New Design.

Marking Information

(1) SIP-4



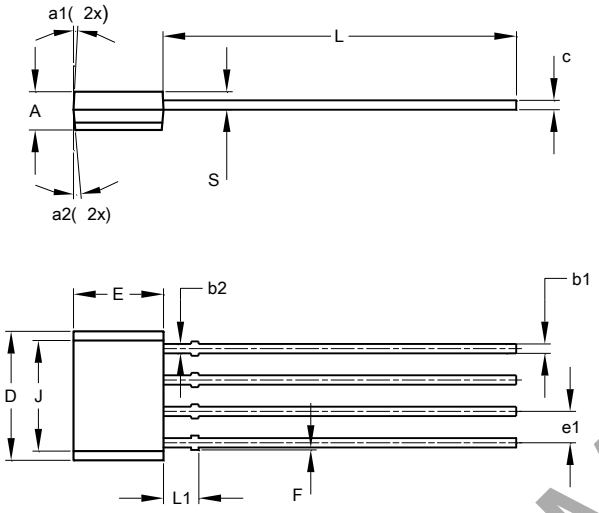
(2) SOT89-5



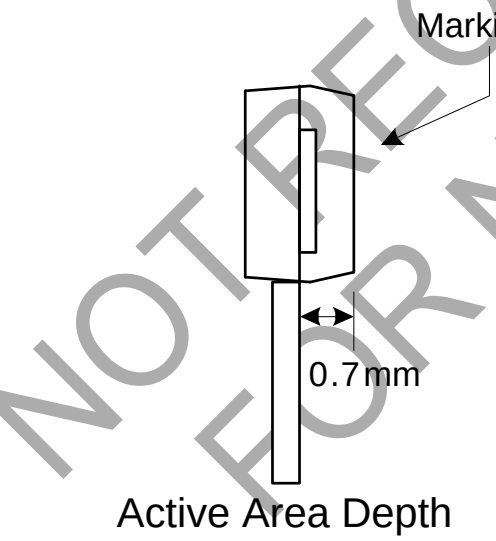
Package Outline Dimensions (All Dimensions in mm)

Please see http://www.diodes.com/package-outlines.html for the latest version.

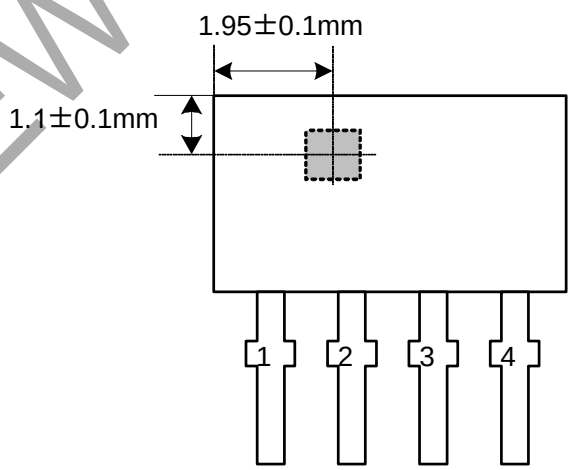
(1) Package Type: SIP-4



SIP-4			
Dim	Min	Max	Typ
A	1.45	1.65	1.55
b1	0.38	0.44	0.40
b2	-	-	0.48
c	0.35	0.45	0.40
D	5.12	5.32	5.22
e1	1.24	1.30	1.27
E	3.55	3.75	3.65
F	0.00	0.20	-
J	4.10	4.30	4.20
L	14.00	14.60	14.30
L1	1.32	1.52	1.42
S	0.63	0.83	0.73
a1	-	5°	3°
a2	4°	7°	5°
a3	4°	7°	5°
a4	-	5°	3°
All Dimensions in mm			



Active Area Depth

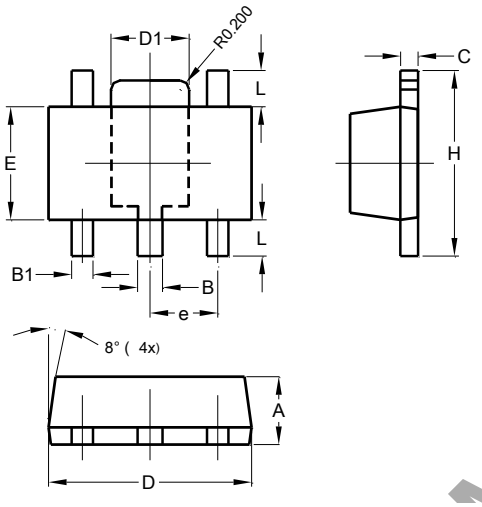


Sensor Location

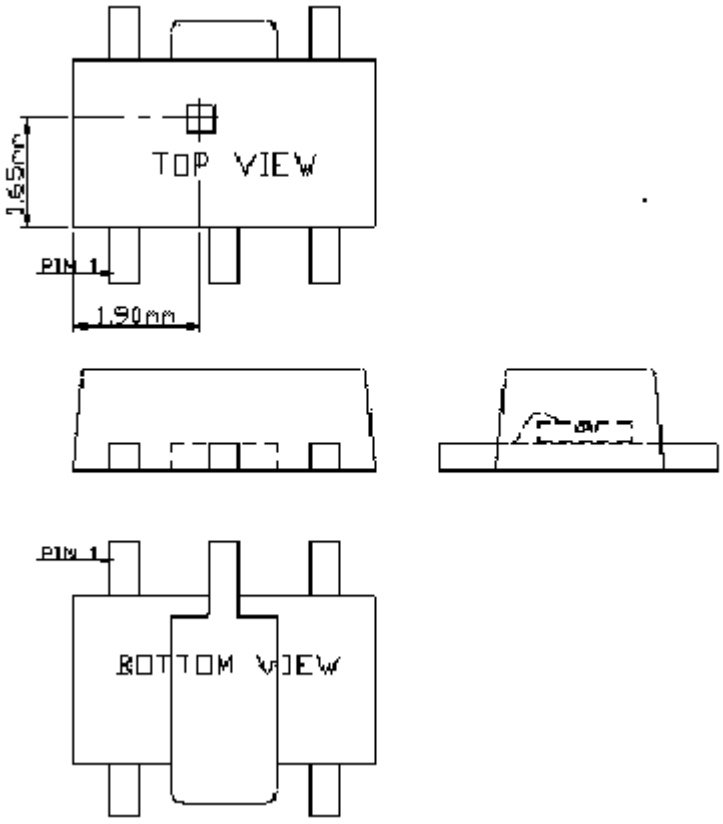
Package Outline Dimensions (Cont.)

Please see http://www.diodes.com/package-outlines.html for the latest version.

(2) Package Type: SOT89-5



SOT89-5			
Dim	Min	Max	Typ
A	1.40	1.60	1.50
B	0.50	0.62	0.56
B1	0.44	0.54	0.48
C	0.35	0.43	0.38
D	4.40	4.60	4.50
D1	1.62	1.83	1.733
E	2.40	2.60	2.50
e	-	-	1.50
H	3.95	4.25	4.10
L	0.65	0.95	0.80
All Dimensions in mm			

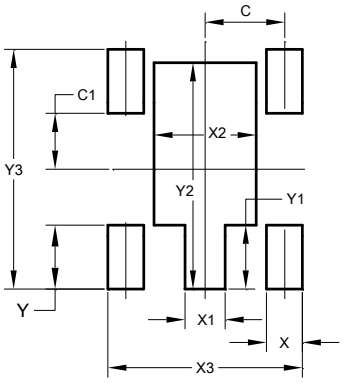


Sensor Location

Suggested Pad Layout

Please see http://www.diodes.com/package-outlines.html for the latest version.

SOT89-5



Dimensions	Value (in mm)
C	1.500
C1	1.050
X	0.680
X1	0.760
X2	1.930
X3	3.680
Y	1.200
Y1	1.200
Y2	4.250
Y3	4.500