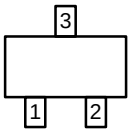
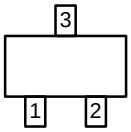
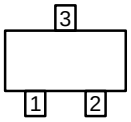
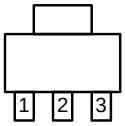
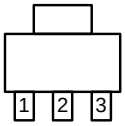
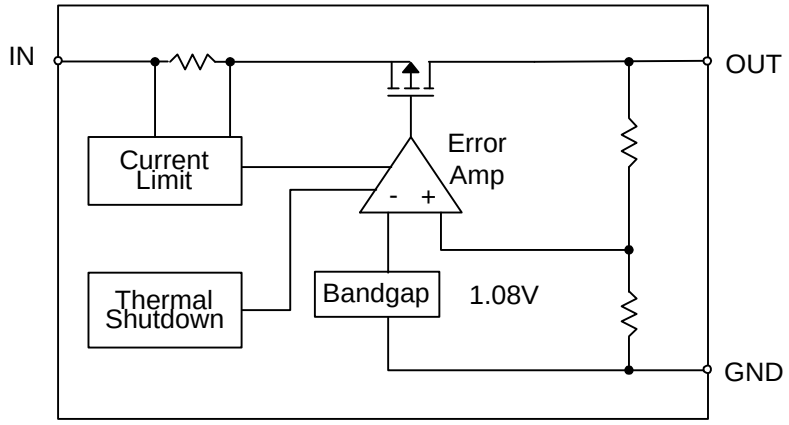
Pin Assignments

Package		No.	Pin Name	Description
Type	Code			
(Top View)  (SC59)	W	1	IN	IN: Power Input OUT: Output Voltage GND: Ground
		2	OUT	
		3	GND	
(Top View)  (SC59R)	R	1	GND	
		2	OUT	
		3	IN	
(Top View)  (SOT23)	SA	1	IN	
		2	OUT	
		3	GND	
(Top View)  (SOT89-3L)	Y	1	OUT	
		2	GND	
		3	IN	
(Top View)  (SOT89R-3L)	YR	1	GND	
		2	IN	
		3	OUT	

Functional Block Diagram



Absolute Maximum Ratings

Symbol	Parameter	Rating	Unit
V_{CC}	Input Voltage	+6	V
T_{OP}	Operating Junction Temperature	-40 to +125	ºC
T_{ST}	Storage Temperature Range	-65 to +150	ºC

Recommended Operating Conditions

Symbol	Parameter	Min	Max	Unit
V_{IN}	Input Voltage	2.7	5.5	V
I_{OUT}	Output Current	0	300	mA
T_A	Operating Ambient Temperature	-40	85	°C

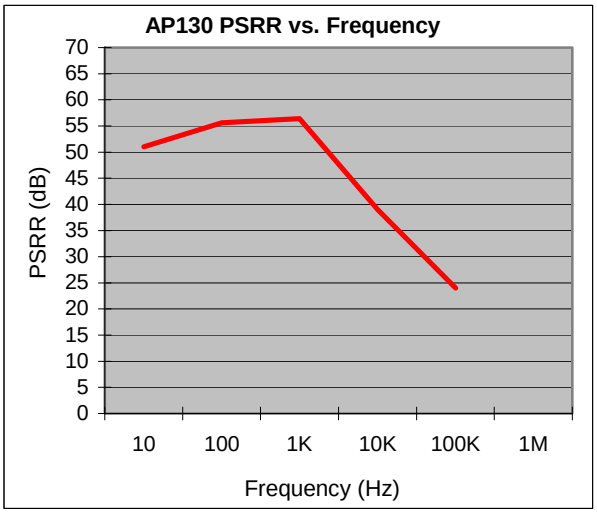
Electrical Characteristics

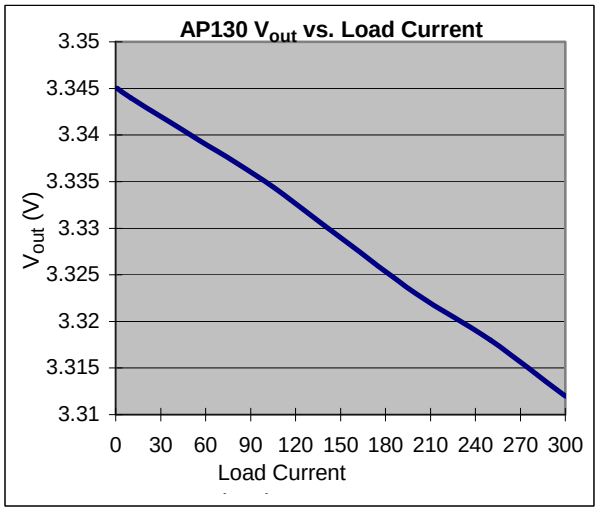
T_A = 25ºC, C_{IN} = 1µF, C_{OUT} = 10µF, unless otherwise specified.

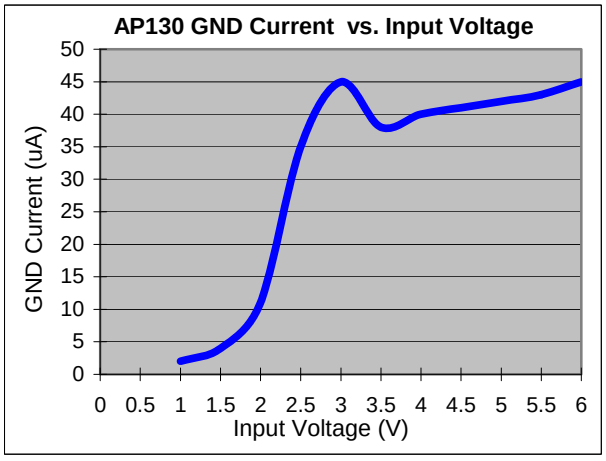
Symbol	Parameter	Conditions	Min	Typ.	Max	Unit
V_{DROP}	Dropout Voltage (Note 2)	I_L = 300mA	-	400	500	mV
I_{LIMIT}	Current Limit (Note 3)	V_{IN} = 5V, V_{OUT} = 0V	350	450	-	mA
I_{short}	Short Circuit Current	V_{OUT} < 1.05V	-	150	300	mA
ΔV_{LINE}	Line Regulation	I_{OUT} = 1mA, V_{IN} = (V_{OUT}+1V) to 5.5V	-	0.1	0.3	%/V
PSRR	Ripple Rejection	F = 100Hz, C_{IN} = 1µF, C_O = 10uF, I_L = 100mA	-	58	-	dB
ΔV_{LOAD}	Load Regulation (Note 4)	I_L = 1~300mA, V_{IN} = 5V	-	30	40	mV
ΔV_{OUT}	Output Voltage Accuracy	I_L = 1mA, V_{IN} = 5V	-2	-	+2	%
	Output Voltage Temperature Coefficient (Note 5)		-	50	150	PPM/ºC
I_Q	Quiescent Current	I_L = 0mA, V_{IN} = 5V	-	50	100	µA
θ_{JA}	Thermal Resistance Junction-to-Ambient	SC59/SC59R (Note 6)	-	250	-	ºC/W
		SOT23 (Note 7)	-	200	-	
		SOT89-3L/SOT89R-3L (Note 8)	-	100	-	
θ_{JC}	Thermal Resistance Junction-to-Case	SC59/SC59R (Note 6)	-	79	-	ºC/W
		SOT23 (Note 7)	-	43	-	
		SOT89-3L/SOT89R-3L (Note 8)	-	23	-	

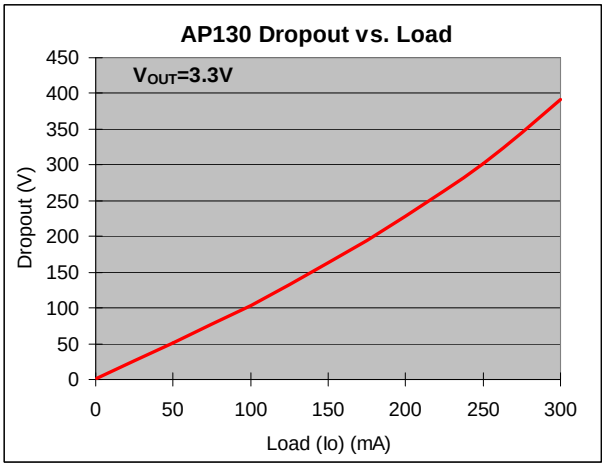
Notes:
2. Dropout voltage is defined as the input to output differential voltage. Dropout is measured at constant junction temperature by using pulsed on time, and the criterion is V_{OUT} inside target value ±2%. This test is skipped at the condition of V_{IN}<3V.
3. Current limit is measured at constant junction temperature by using pulsed testing with a low ON time.
4. Regulation is measured at constant junction temperature by using pulsed testing with a low ON time.
5. Guaranteed by design.
6. Test condition for SC59/SC59R: Devices mounted on FR-4 PC board, 1*MRP, 2oz copper, single sided, calibrate at T_J=125ºC, T_A=25ºC, with minimum recommended pad layout.
7. Test condition for SOT23: Devices mounted on FR-4 PC board, 1*MRP, calibrate at T_J=85ºC, T_A=29ºC.
8. Test condition for SOT89-3L/SOT89R-3L: No Heat Sink, no air flow.

Typical Performance Characteristics









Functional Descriptions

A minimum of 10µF capacitor must be connected from OUT to ground to insure stability. Typically a large storage capacitor is connected from V_{IN} to ground to ensure that the input voltage does not sag below the minimum dropout voltage during the load transient response.

Ordering Information

AP 130 - XX XX X - X

Output Voltage	Package	Lead Free	Packing
15 : 1.5V	W : SC59	L : Lead Free	7/13 : Tape & Reel
18 : 1.8V	R : SC59R	G : Green (Note 9)	
20 : 2.0V	SA : SOT23		
25 : 2.5V	Y : SOT89-3L		
28 : 2.8V	YR : SOT89R-3L		
30 : 3.0V			
33 : 3.3V			
35 : 3.5V			

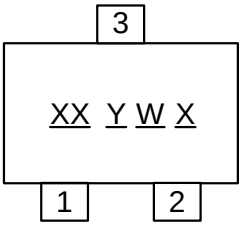
Device	Package Code	Packaging (Note 10)	7"/13" Tape and Reel	
			Quantity	Part Number Suffix
AP130-XXWL-7	W	SC59	3000/Tape & Reel	-7
AP130-XXWG-7	W	SC59	3000/Tape & Reel	-7
AP130-XXRL-7	R	SC59R	3000/Tape & Reel	-7
AP130-XXRG-7	R	SC59R	3000/Tape & Reel	-7
AP130-XXSAG-7	SA	SOT23	3000/Tape & Reel	-7
AP130-XXYL-13	Y	SOT89-3L	2500/Tape & Reel	-13
AP130-XXYG-13	Y	SOT89-3L	2500/Tape & Reel	-13
AP130-XXYRL-13	YR	SOT89R-3L	2500/Tape & Reel	-13
AP130-XXYRG-13	YR	SOT89R-3L	2500/Tape & Reel	-13

Notes: 9. SOT23 is available in "Green" product only.
10. Pad layout as shown on Diodes Inc. suggested pad layout document AP02001, which can be found on our website at http://www.diodes.com/datasheets/ap02001.pdf.

Marking Information

(1) SC59, SC59R and SOT23

(Top View)



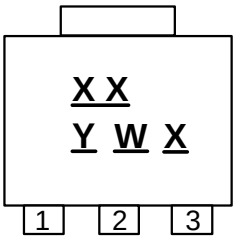
XX : Identification code
Y : Year 0~9
W : Week : A~Z : 1~26 week;
a~z : 27~52 week; z represents
52 and 53 week
X : A~Z : Green
a~z : Lead Free

Device	Package (Note 11)	Identification Code
AP130-15W	SC59W	CA
AP130-18W	SC59W	CD
AP130-20W	SC59W	CF
AP130-25W	SC59W	CK
AP130-28W	SC59W	CN
AP130-30W	SC59W	CP
AP130-33W	SC59W	CS
AP130-35W	SC59W	CU
AP130-15R	SC59R	GO
AP130-18R	SC59R	GR
AP130-20R	SC59R	GT
AP130-25R	SC59R	GY
AP130-28R	SC59R	H1
AP130-30R	SC59R	H3
AP130-33R	SC59R	H9
AP130-35R	SC59R	HB
AP130-15SA	SOT23	U2
AP130-18SA	SOT23	U3
AP130-20SA	SOT23	U4
AP130-25SA	SOT23	U5
AP130-28SA	SOT23	U6
AP130-30SA	SOT23	U7
AP130-33SA	SOT23	U8
AP130-35SA	SOT23	U9

Marking Information (cont.)

(2) SOT89-3L and SOT89R-3L

(Top View)



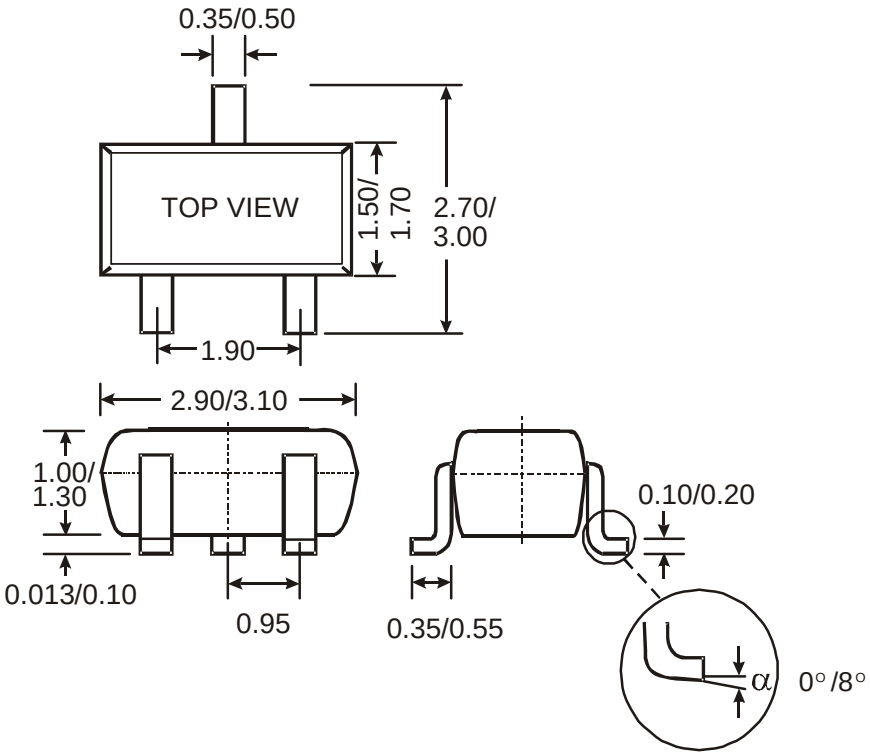
XX : Identification code
Y : Year : 0~9
W : Week : A~Z : 1~26 week;
a~z : 27~52 week;
z represents 52 and 53 week
X : Internal code
A~Z : Green
a~z : Lead Free

Device	Package (Note 11)	Identification Code
AP130-15Y	SOT89-3L	CA
AP130-18Y	SOT89-3L	CD
AP130-20Y	SOT89-3L	CF
AP130-25Y	SOT89-3L	CK
AP130-28Y	SOT89-3L	CN
AP130-30Y	SOT89-3L	CP
AP130-33Y	SOT89-3L	CS
AP130-35Y	SOT89-3L	CU
AP130-15YR	SOT89R-3L	GO
AP130-18YR	SOT89R-3L	GR
AP130-20YR	SOT89R-3L	GT
AP130-25YR	SOT89R-3L	GY
AP130-28YR	SOT89R-3L	H1
AP130-30YR	SOT89R-3L	H3
AP130-33YR	SOT89R-3L	H9
AP130-35YR	SOT89R-3L	HB

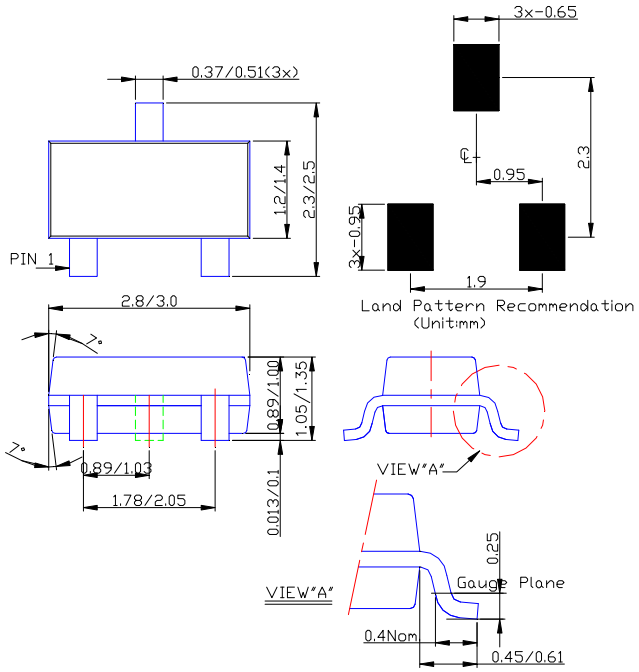
Notes: 11. For Packaging Details, go to our website at http://www.diodes.com/datasheets/ap02007.pdf.

Package Outline Dimensions (All Dimensions in mm)

(1) Package Type: SC59 and SC59R

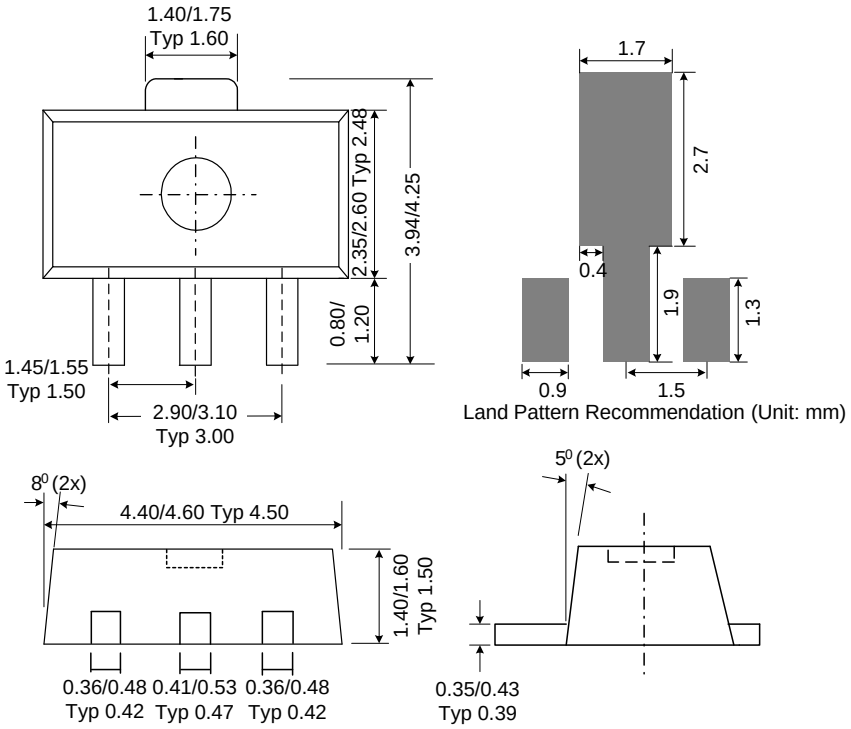


(2) Package Type: SOT23



Package Outline Dimensions (cont.)

(3) Package Type: SOT89-3L and SOT89R-3L



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