

DYNAMIC PSR ACCELERATOR**AP4340****General Description**

The AP4340 is an output voltage detector for Primary Side Control System. It detects the output voltage and provides a periodical signal when the output voltage is lower than a certain threshold. The periodical signal can be coupled by the transformer to the primary side and provided as an awakening signal for the main primary side controller. By fast response to secondary side voltage, the AP4340 can effectively improve the transient performance of Primary Side Control System.

The AP4340 is available in TO-92 and SOT-23 packages.

Features

- Fast Detector of Supply Voltages
- 37kHz Output Pulse
- No External Components

Applications

- Adapters/Chargers for Cell/Cordless Phones, ADSL Modems, MP3 and Other Portable Apparatus
- Standby and Auxiliary Power Supplies

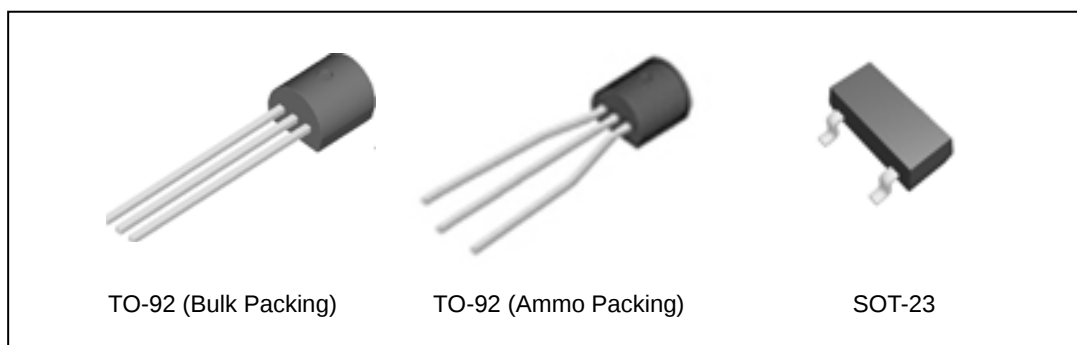


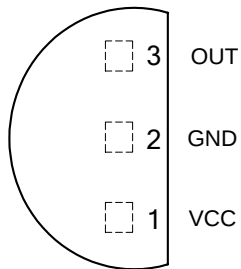
Figure 1. Package Types of AP4340

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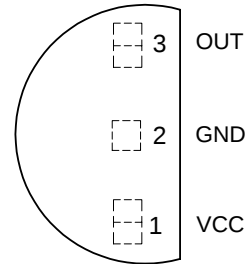
AP4340

Pin Configuration

Z Package
(TO-92 Bulk Packing)



Z Package
(TO-92 Ammo Packing)



N Package
(SOT-23)

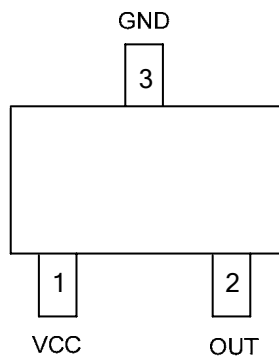


Figure 2. Pin Configuration of AP4340 (Top View)

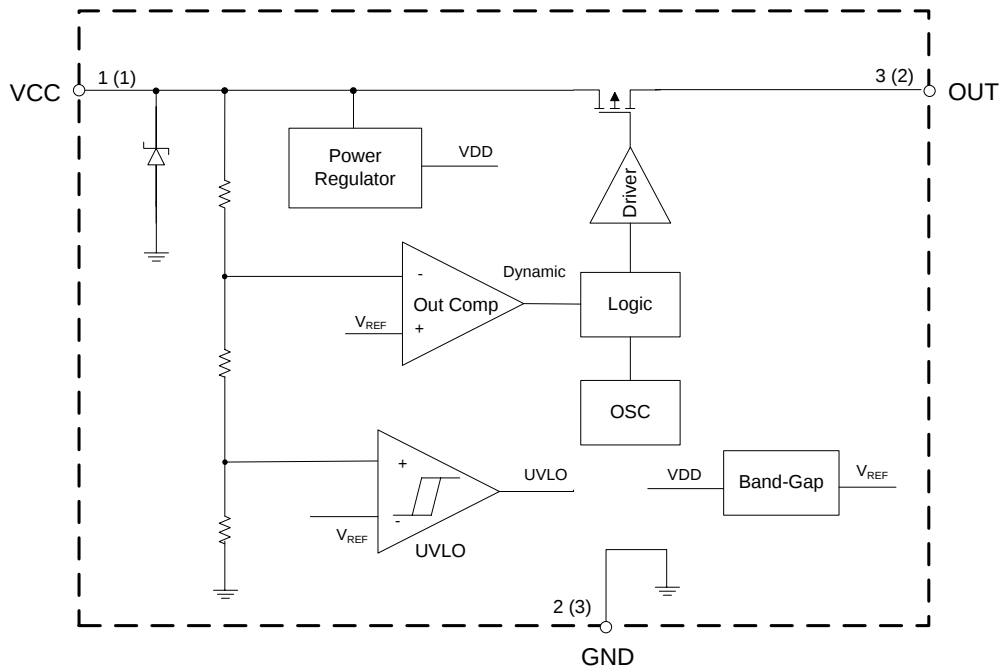
Pin Description

Pin Number		Pin Name	Function
TO-92	SOT-23		
1	1	VCC	This pin is the positive supply voltage input. VCC signal is also used to detect the secondary output voltage
3	2	OUT	This pin supplies the pulse output current when V _{CC} is lower than the internal trigger voltage
2	3	GND	This pin is the control ground

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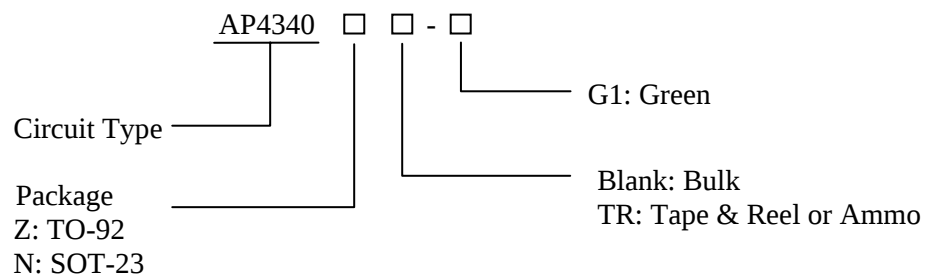
Functional Block Diagram



A (B)
A for TO-92
B for SOT-23

Figure 3. Functional Block Diagram of AP4340

Ordering Information



Package	Temperature Range	Part Number	Marking ID	Packing Type
TO-92	-40 to 85°C	AP4340Z-G1	4340Z-G1	Bulk
		AP4340ZTR-G1	4340Z-G1	Ammo
SOT-23		AP4340NTR-G1	GT2	Tape & Reel

BCD Semiconductor's Pb-free products, as designated with "G1" suffix in the part number, are RoHS compliant and green.

**DYNAMIC PSR ACCELERATOR****AP4340****Absolute Maximum Ratings (Note 1)**

Parameter	Value		Unit
Supply Voltage V_{CC}	-0.3 to 9		V
Voltage at OUT	-47 to 9		V
V_{CC} to V_{OUT}	-0.6 to 47		V
Output Current at OUT	Internally limited		A
Power Dissipation at $T_A=25^{\circ}\text{C}$	SOT-23	0.2	W
	TO-92	0.5	
Operating Junction Temperature	150		$^{\circ}\text{C}$
Storage Temperature	-65 to 150		$^{\circ}\text{C}$
Lead Temperature (Soldering, 10 sec)	300		$^{\circ}\text{C}$
Thermal Resistance Junction-to-Case	SOT-23	137	$^{\circ}\text{C/W}$
	TO-92	83	

Note 1: Stresses greater than those listed under “Absolute Maximum Ratings” may cause permanent damage to the device. These are stress ratings only, and functional operation of the device at these or any other conditions beyond those indicated under “Recommended Operating Conditions” is not implied. Exposure to “Absolute Maximum Ratings” for extended periods may affect device reliability.

Recommended Operating Conditions

Parameter	Symbol	Min	Max	Unit
Supply Voltage	V_{CC}	0	6	V
Ambient Temperature	T_A	-40	85	$^{\circ}\text{C}$

**DYNAMIC PSR ACCELERATOR****AP4340****Electrical Characteristics** $V_{CC}=5V$, $T_A=25^{\circ}C$, unless otherwise specified.

Parameter	Conditions	Min	Typ	Max	Unit
Supply Voltage (VCC Pin)					
Power-on Voltage (V_{ON})		4.1	4.4	4.8	V
Startup Current	$V_{CC}=V_{ON}-0.2V$	50	200	245	μA
Operating Current	OUT pin floating $V_{CC}=5V$	50	240	285	μA
Power-off Voltage		3.45	3.8	4.15	V
Internal Trigger Voltage		4.83	4.9	5	V
Output Section/ Oscillator Section					
Duty Cycle	$V_{CC}=4.5V$	1.5	5	6.5	%
Normal Frequency	$V_{CC}=4.5V$	25	38	50	kHz
Output Maximum Current	OUT pin connect 100 Ω to GND	15	23	30	mA

Note 2: The system output voltage is 5V.

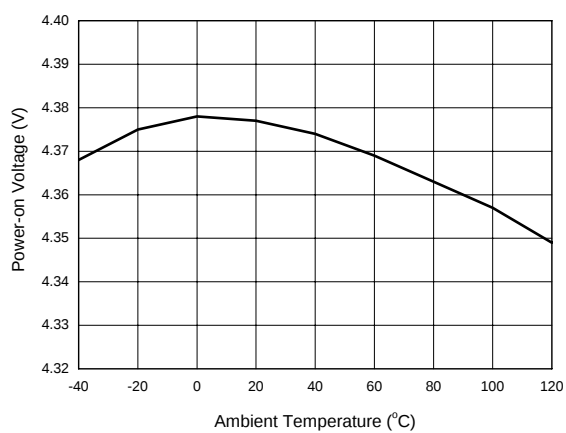
**DYNAMIC PSR ACCELERATOR****AP4340****Typical Performance Characteristics**

Figure 4. Power-on Voltage vs. Ambient Temperature

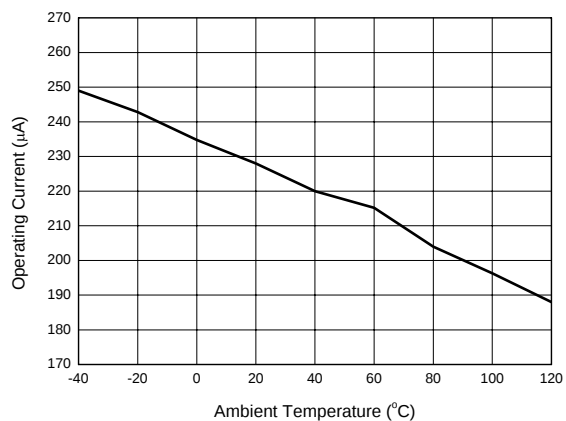


Figure 5. Operating Current vs. Ambient Temperature

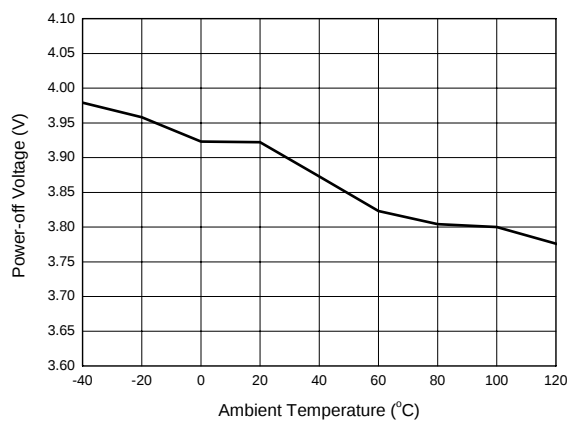


Figure 6. Power-off Voltage vs. Ambient Temperature

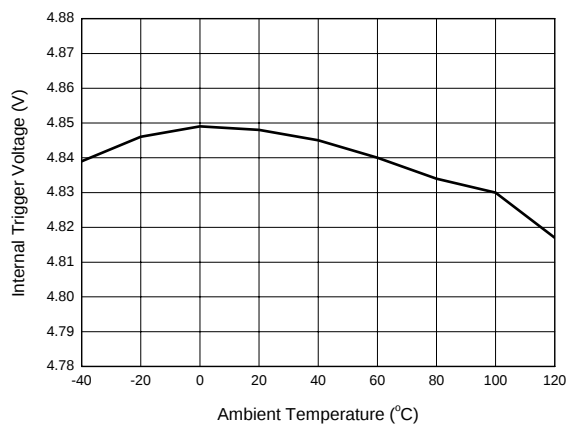


Figure 7. Internal Trigger Voltage vs. Ambient Temperature

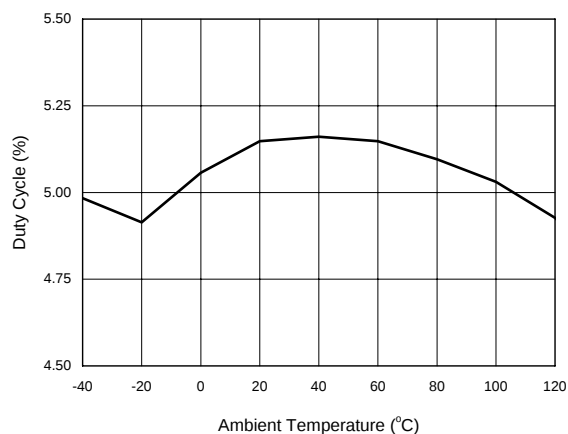
**DYNAMIC PSR ACCELERATOR****AP4340****Typical Performance Characteristics (Continued)**

Figure 8. Duty Cycle vs. Ambient Temperature

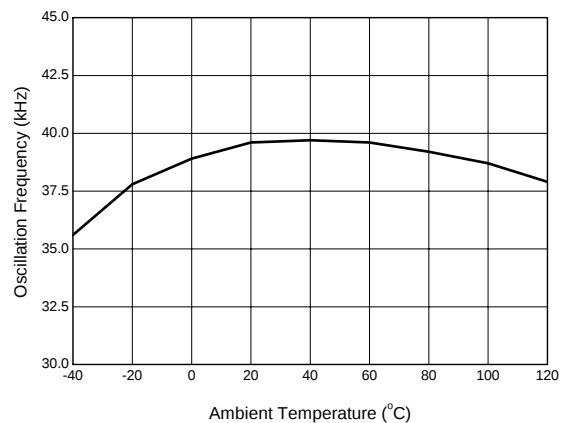


Figure 9. Oscillation Frequency vs. Ambient Temperature

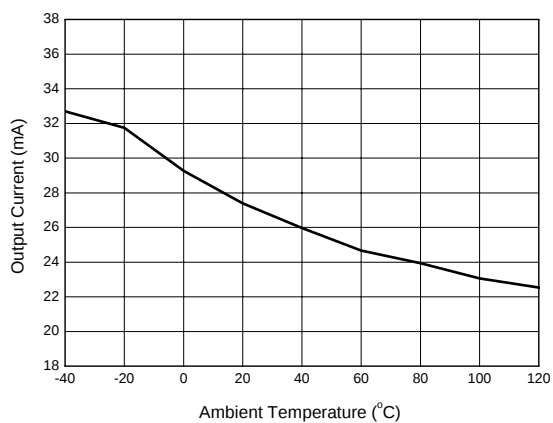


Figure 10. Output Current vs. Ambient Temperature

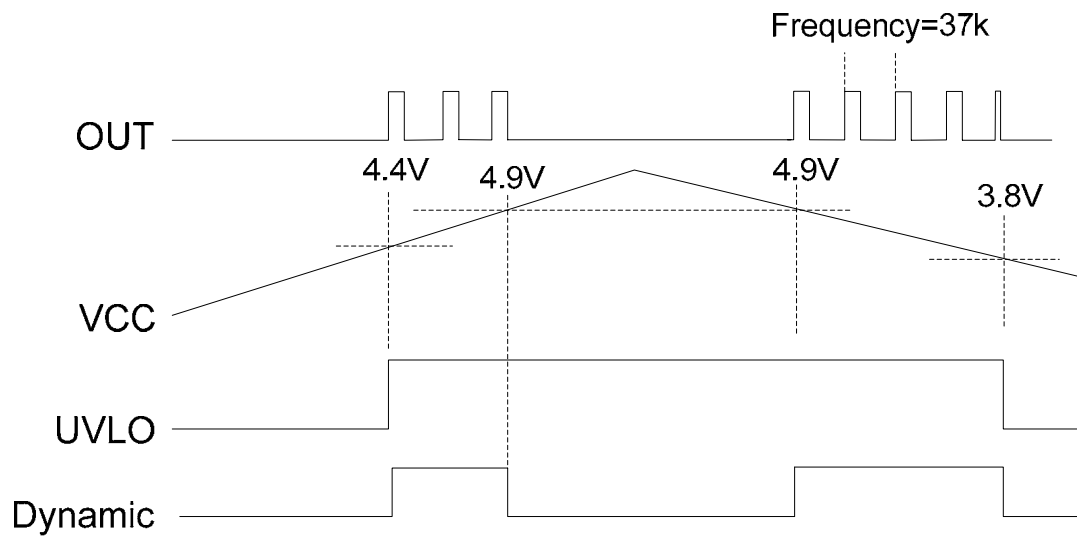
DYNAMIC PSR ACCELERATOR**AP4340****Operation Description**

Figure 11. Typical Waveforms of AP4340

When VCC voltage is beyond 4.4V, the AP4340 starts up. When the VCC voltage falls below the internal trigger voltage (4.9V), the OUT pin asserts a periodical pulse with frequency of 37kHz. The pulse signal will stop when VCC voltage increases up to the trigger voltage. When the VCC voltage is below 3.8V, the AP4340 will be shut down.

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Typical Application

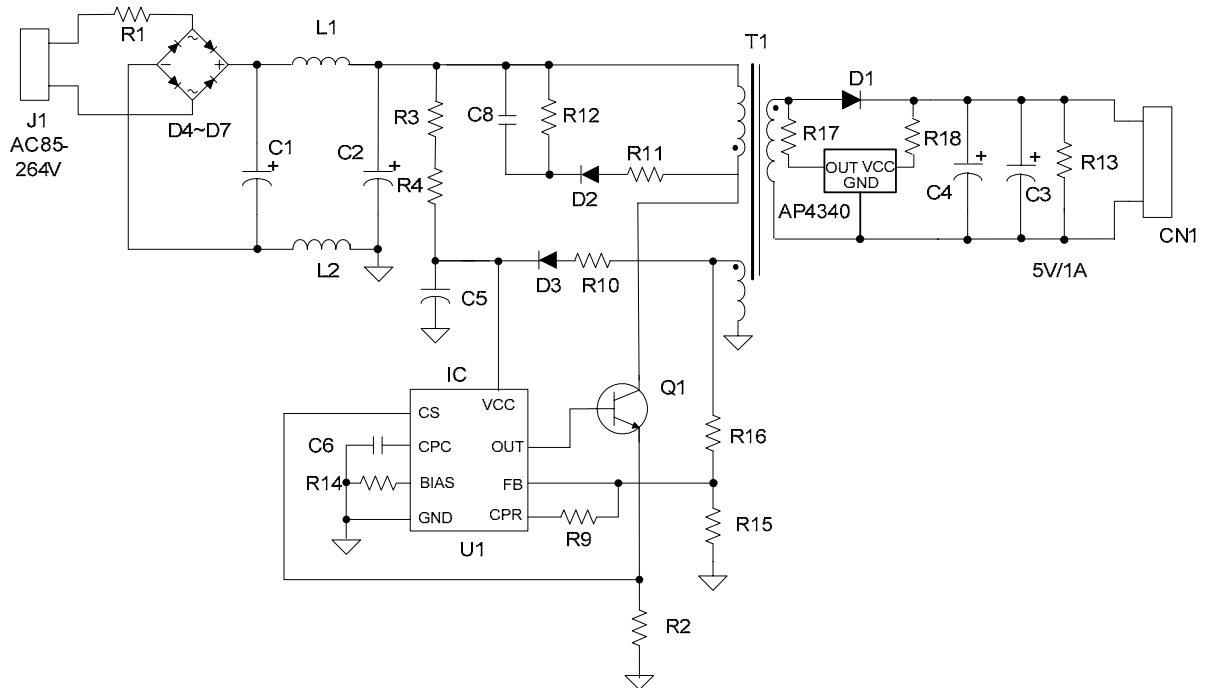
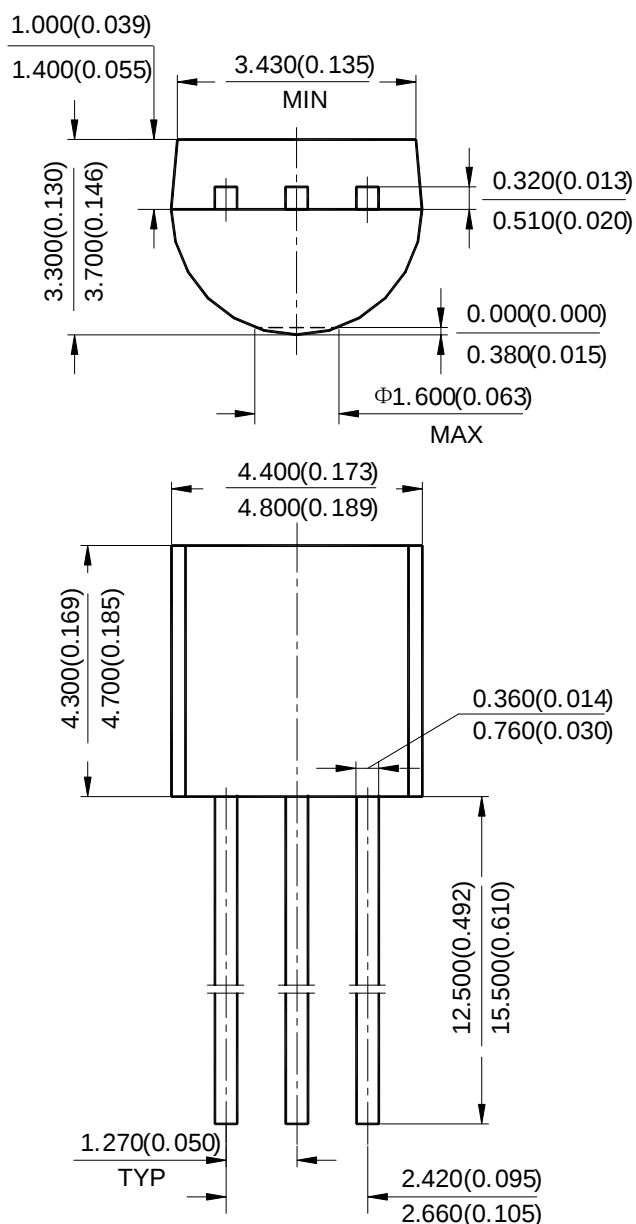
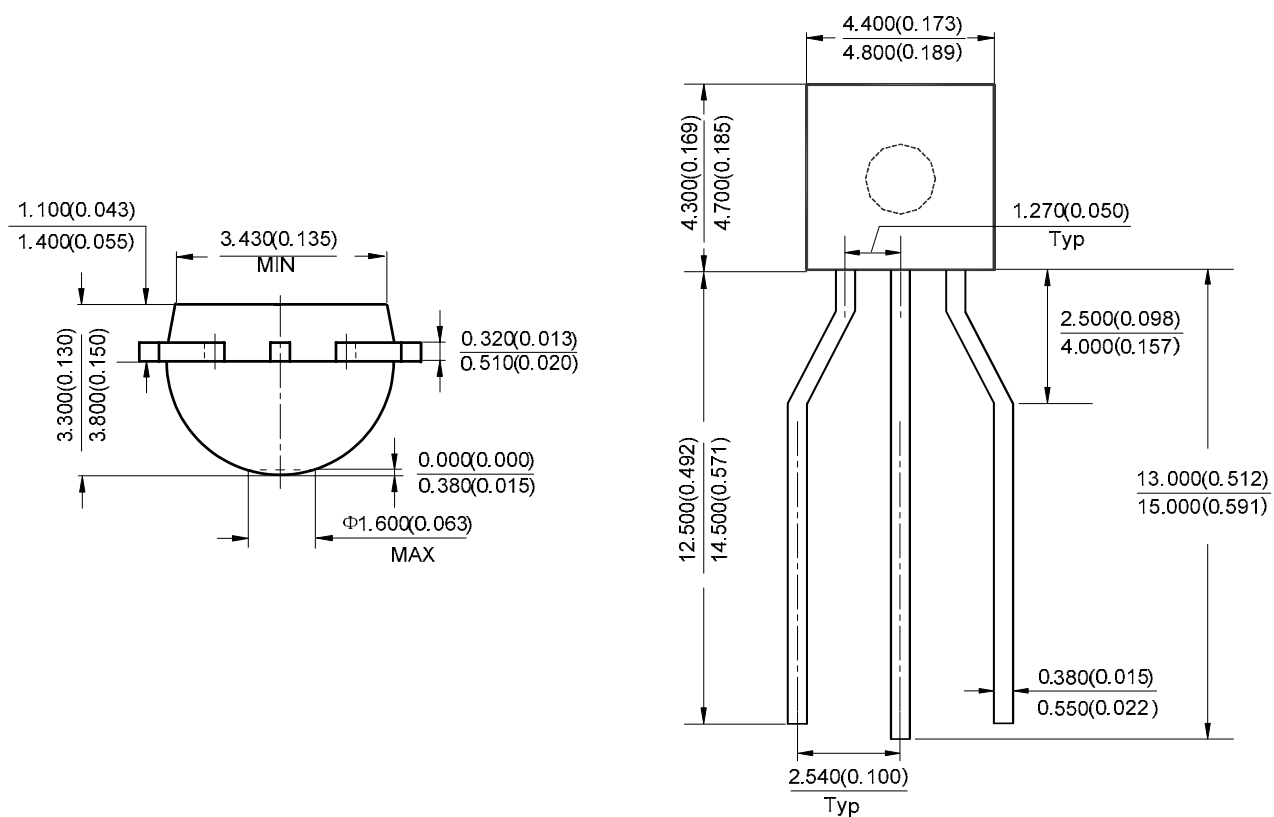


Figure 12. Typical Application of AP4340

**DYNAMIC PSR ACCELERATOR****AP4340****Mechanical Dimensions****TO-92(Bulk Packing)****Unit: mm(inch)**

**DYNAMIC PSR ACCELERATOR****AP4340****Mechanical Dimensions (Continued)****TO-92 (Ammo Packing)****Unit: mm(inch)**

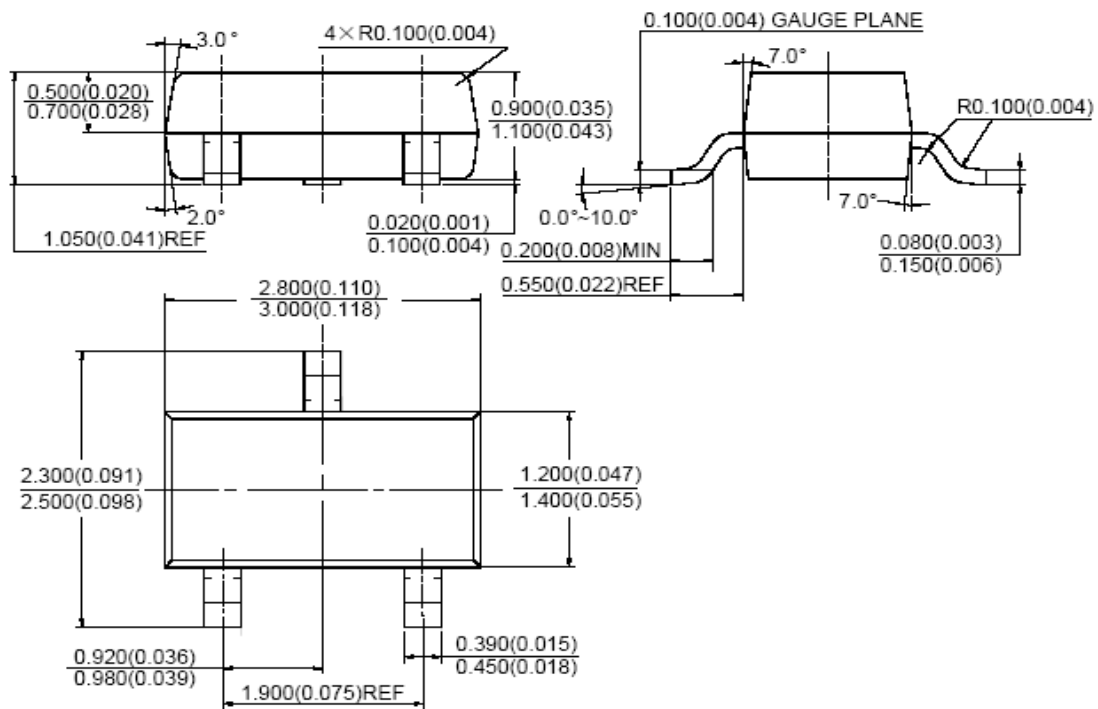
DYNAMIC PSR ACCELERATOR

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Mechanical Dimensions (Continued)

SOT-23

Unit: mm(inch)





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