■ General Description

The AME8824 family of positive, linear regulators feature low quiescent current (30μA typ.) with low dropout voltage, making them ideal for battery applications. The space-saving SOT-26 package are attractive for "Pocket" and "Hand Held" applications.

These rugged devices have both Thermal Shutdown, and Current Fold-back to prevent device failure under the "Worst" of operating conditions.

The SOT-26 version also features a "Power Good" detector, which pulls low when the output is out of regulation.

The AME8824 is stable with an output capacitance of 2.2μF or greater.

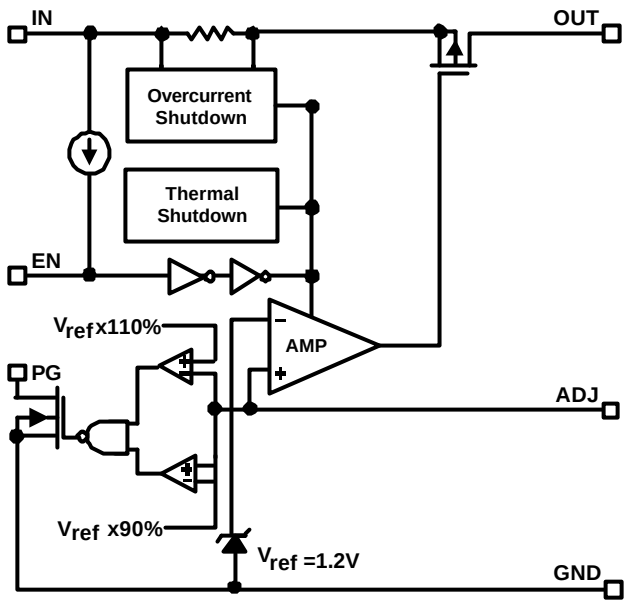
■ Features

- Very Low Dropout Voltage
- Guaranteed 300mA Output
- Typical accuracy within 2%
- 30μA Quiescent Current
- Over-Temperature Shutdown
- Current Limiting
- Short Circuit Current Fold-back
- Power Good Detector (6 pin version only)
- Power-Saving Shutdown Mode
- Space-Saving SOT-26
- Adjustable Output Voltages
- Low Temperature Coefficient

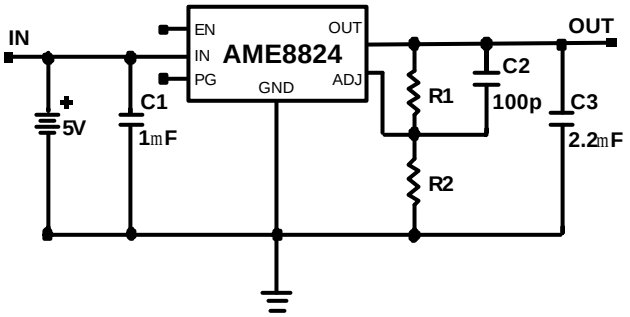
■ Applications

- Instrumentation
- Portable Electronics
- Wireless Devices
- Cordless Phones
- PC Peripherals
- Battery Powered Widgets
- Electronic Scales

■ Functional Block Diagram

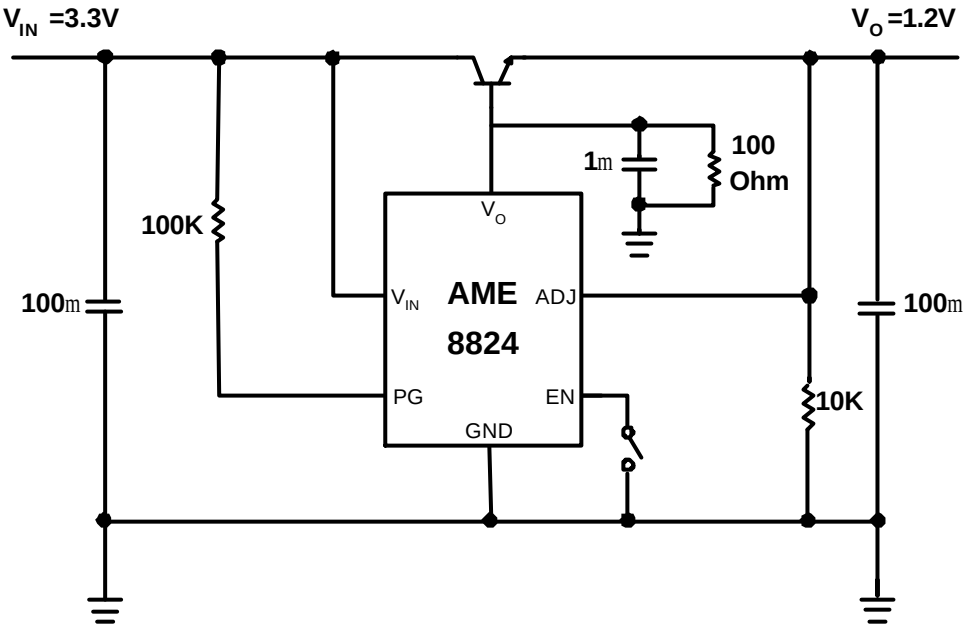


■ Typical Application



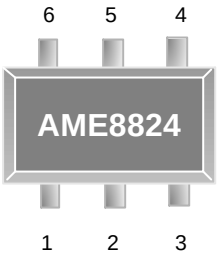
V_{OUT} = 1.2 (R1 +R2)/R2
C2 is unnecessary when R1 or R2 < 20K
PG pin is only available in the SOT-26 package option

■ Advanced Application



■ Pin Configuration

SOT-26
Top View



AME8824

1. V_{IN}
2. GND
3. EN
4. PG
5. ADJ
6. V_{OUT}

■ Ordering Information

AME8824 x x x x x

- **Special Feature**
- **Number of Pins**
- **Package Type**
- **Operating Temperature Range**
- **Product Grade or Option**

Product Grade or Option	Operating Temperature Range	Package Type	Number of Pins	Special Feature
A: ADJ	E: -40°C to 85°C	E: SOT-2X	Y: 6	L: Low Profile Y: Lead Free & Low Profile Z: Lead Free

■ Ordering Information (contd.)

Part Number	Marking	Output Voltage	Package	Operating Temp. Range
AME8824AEEY	AUEww	ADJ	SOT-26	- 40°C to + 85°C
AME8824AEEYL	AUEww	ADJ	TSOT-26	- 40°C to + 85°C
AME8824AEEYY	AUEww	ADJ	TSOT-26	- 40°C to + 85°C
AME8824AEEYZ	AUEww	ADJ	SOT-26	- 40°C to + 85°C

ww: represents the date code
* A line on top of the first character represents lead free plating
Please consult AME sales office or authorized Rep./Distributor for the availability of output voltage and package type.

■ Absolute Maximum Ratings

Parameter	Maximum	Unit
Input Voltage	8	V
Output Current	P_D / (V_{IN} - V_O)	mA
Input, Output Voltage	GND - 0.3 to V_{IN} + 0.3	V
ESD Classification	B	

Caution: Stress above the listed absolute maximum rating may cause permanent damage to the device

■ Recommended Operating Conditions

Parameter	Rating	Unit
Ambient Temperature Range	- 40 to + 85	°C
Junction Temperature	- 40 to + 125	°C

■ Thermal Information

Parameter		Maximum	Unit
Thermal Resistance (θ_{ja})	SOT-26	260	°C / W
Internal Power Dissipation (P_D) ($\Delta T = 100^oC$)	SOT-26	380	mW
Maximum Junction Temperature		150	°C
Maximum Lead Temperature (10 Sec)		300	°C

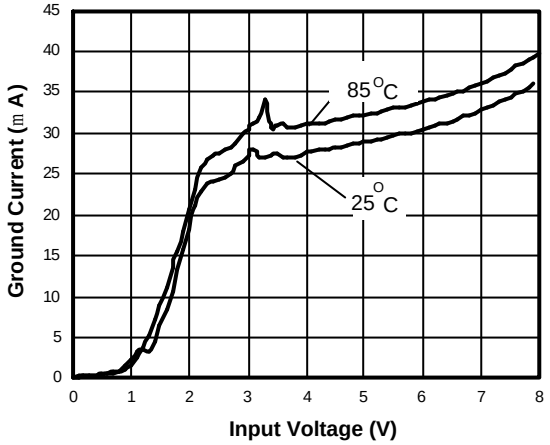
■ Electrical Specifications

TA = 25°C, V_{IN}=5V unless otherwise noted

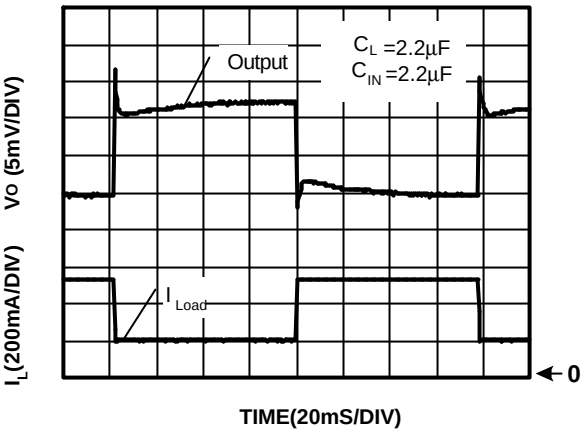
Parameter	Symbol	Test Condition		Min	Typ	Max	Units
Input Voltage	V_{IN}			Note 1		7	V
Output Voltage	V_O	I_O=1mA		-3		3	%
Dropout Voltage	$V_{DROPOUT}$	I_O=300mA, V_O=V_{ONOM} -2.0%	1.2V<=$V_{O(NOM)}$<=2.0V			1300	mV
			2.0V<$V_{O(NOM)}$<=2.8V			400	
			2.8V<$V_{O(NOM)}$<3.8V			300	
Output Current	I_O	V_O>1.2V		300			mA
Current Limit	I_{LIM}	V_O>1.2V		300	450		mA
Short Circuit Current	I_{SC}	V_O<0.8V			150	300	mA
Quiescent Current	I_Q	I_O=0mA			30	50	µA
Ground Pin Current	I_{GND}	I_O=1mA to 300mA			35		µA
Line Regulation	REG_{LINE}	I_O=5mA	V_O < 2.0V			0.15	%
		V_{IN}=V_O+1 to V_O+2	V_O >= 2.0V		0.02	0.1	%
Load Regulation	REG_{LOAD}	I_O=1mA to 300mA			0.2	1	%
Over Temerature Shutdown	OTS				150		°C
Over Temerature Hysterisis	OTH				30		°C
V_O Temperature Coefficient	TC				30		ppm/°C
Power Supply Rejection	PSRR	I_O=100mA, C_O=2.2µF	f=1kHz		50		dB
			f=10kHz		20		
			f=100kHz		15		
Output Voltage Noise	eN	f=10Hz to 100kHz, I_O=10mA, C_{BYP}=0µF	Co=2.2µF		30		µVrms
ADJ Input Bias Current	I_{ADJ}				1		µA
ADJ Reference Voltage	V_{REF}			1.176	1.2	1.224	V
EN Input Threshold	V_{EH}	V_{IN}=2.7V to 7V		2.0		Vin	V
	V_{EL}	V_{IN}=2.7V to 7V		0		0.4	V
EN Input Bias Current	I_{EH}	V_{EN}=V_{IN}, V_{IN}=2.7V to 7V				0.1	µA
	I_{EL}	V_{EN}=0V, V_{IN}=2.7V to 7V				0.5	µA
Shutdown Supply Current	I_{SD}	V_{IN}=5V, V_O=0V, V_{EN}<V_{EL}			0.5	1	µA
Shutdown Output Voltage	$V_{O,SD}$	I_O=35µA, V_{EN}<V_{EL}		0		0.1	V
Output Under Voltage	V_{UV}					85	%$V_{O(NOM)}$
Output Over Voltage	V_{OV}			115			%$V_{O(NOM)}$
PG Leakage Current	I_{LC}	V_{PG}=7V				1	µA
PG Voltage Rating	V_{PG}	V_O in regulation				7	V
PG Voltage Low	V_{OL}	I_{SINK}=0.4mA				0.4	V

Note1: $V_{IN(min)}$=V_{OUT}+$V_{DROPOUT}$

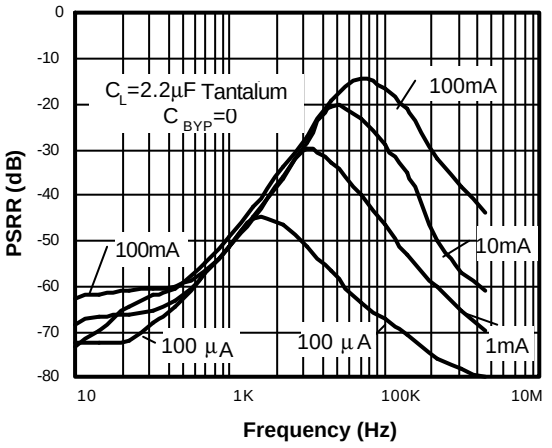
Ground Current vs. Input Voltage



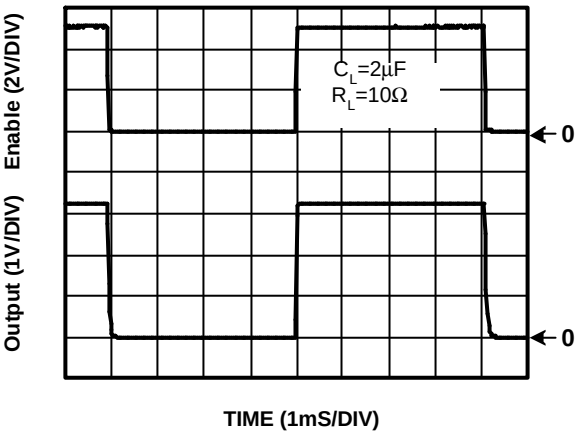
Load Step (1mA-300mA)



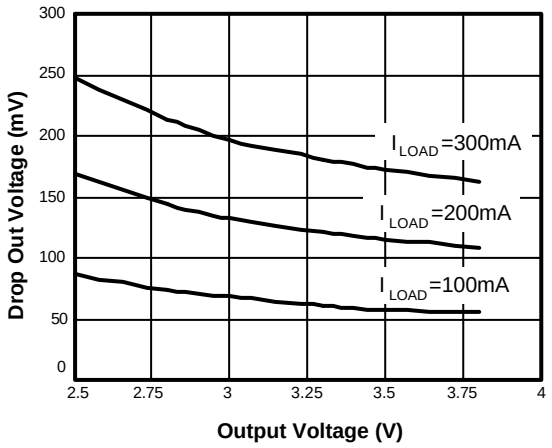
Power Supply Rejection Ratio



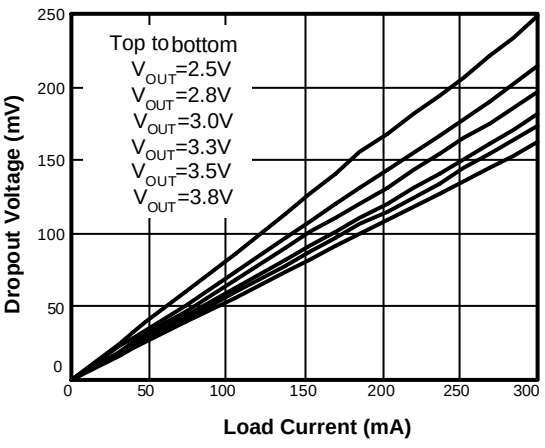
Chip Enable Transient Response



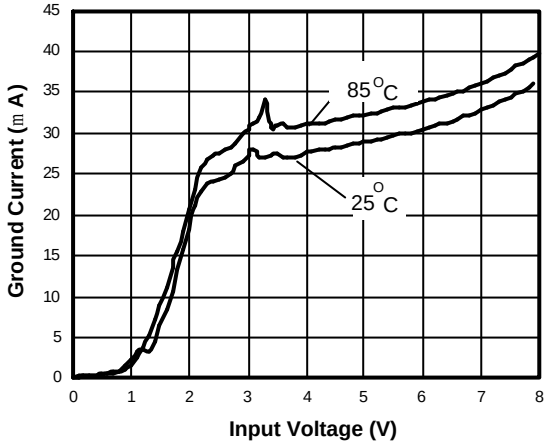
Drop Out Voltage vs. Output Voltage



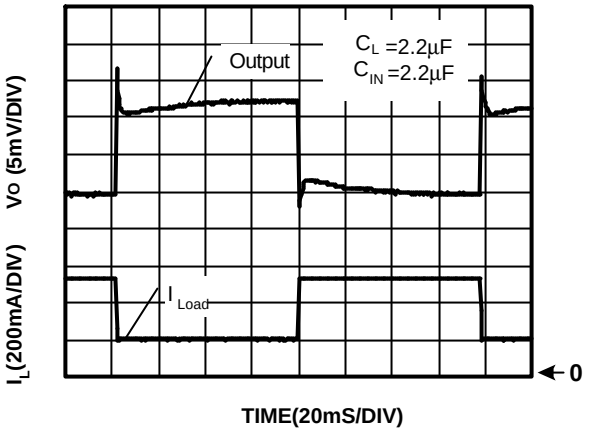
Drop Out Voltage vs. Load Current



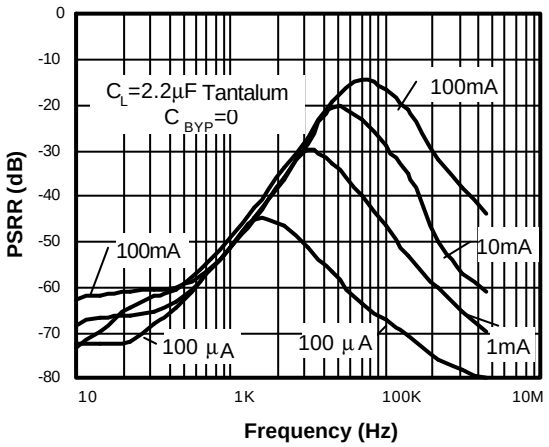
Ground Current vs. Input Voltage



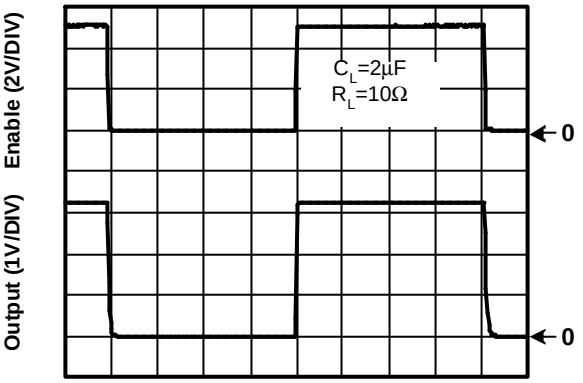
Load Step (1mA-300mA)



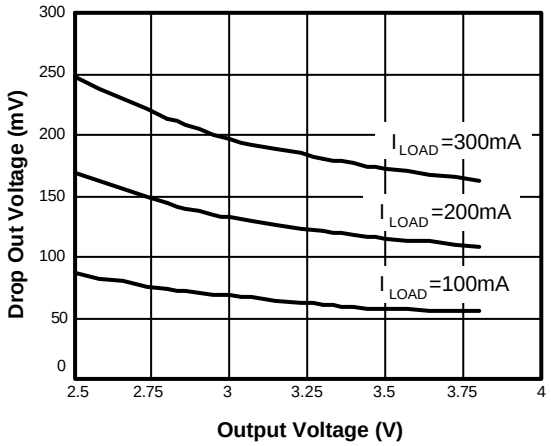
Power Supply Rejection Ratio



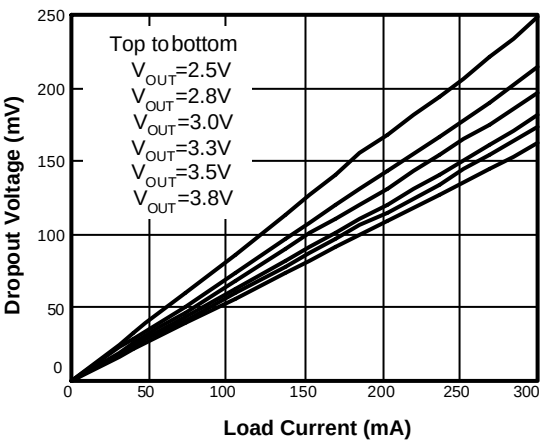
Chip Enable Transient Response



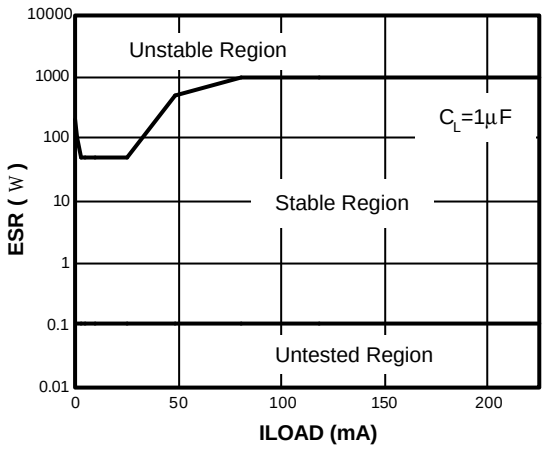
Drop Out Voltage vs. Output Voltage



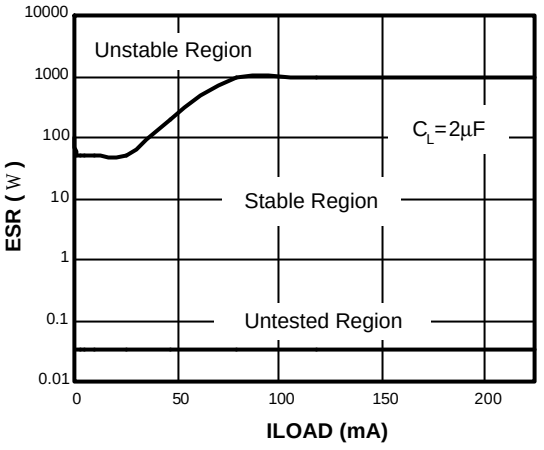
Drop Out Voltage vs. Load Current



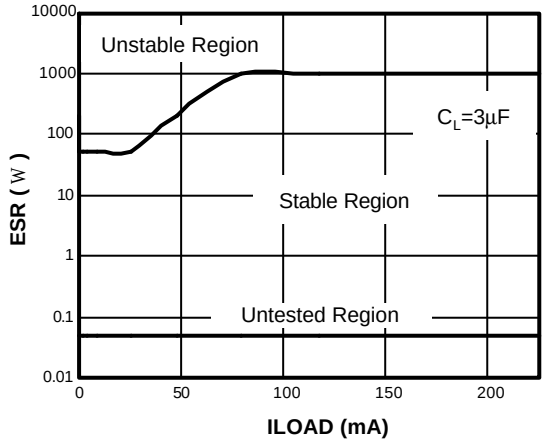
Stability vs. ESR vs. I_{Load}



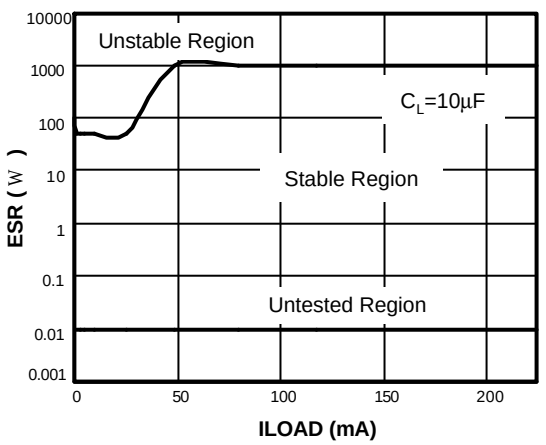
Stability vs. ESR vs. I_{Load}



Stability vs. ESR vs. I_{Load}

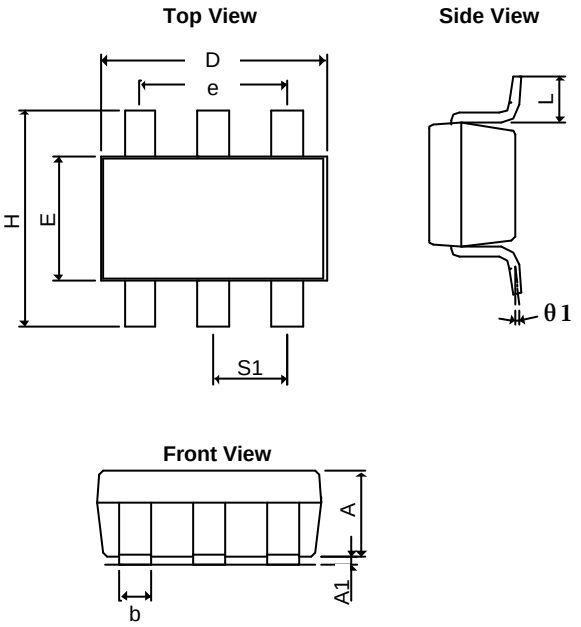


Stability vs. ESR vs. I_{Load}



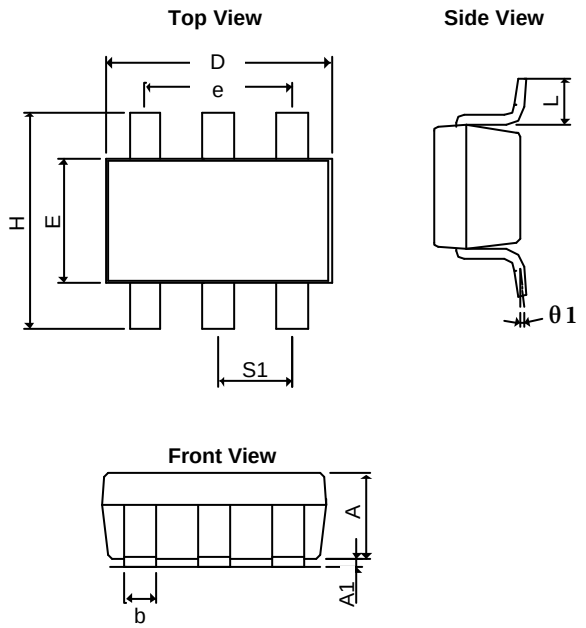
■ Package Dimension

SOT-26



SYMBOLS	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	1.20REF		0.0472REF	
A_1	0.00	0.15	0.0000	0.0059
b	0.30	0.55	0.0118	0.0217
D	2.70	3.10	0.1063	0.1220
E	1.40	1.80	0.0551	0.0709
e	1.90 BSC		0.0748 BSC	
H	2.60	3.00	0.10236	0.11811
L	0.37REF		0.0146REF	
q1	0^o	10^o	0^o	10^o
S_1	0.95REF		0.0374REF	

TSOT-26



SYMBOLS	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
$A+A_1$	0.90	1.25	0.0354	0.0492
b	0.30	0.50	0.0118	0.0197
D	2.70	3.10	0.1063	0.1220
E	1.40	1.80	0.0551	0.0709
e	1.90 BSC		0.07480 BSC	
H	2.40	3.00	0.09449	0.11811
L	0.35BSC		0.0138BSC	
q1	0^o	10^o	0^o	10^o
S_1	0.95BSC		0.0374BSC	

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