DESCRIPTION

The A6150 series of fixed output low dropout linear regulators are designed for portable battery powered applications which require low noise operation, fast enable response time, and low dropout. The device achieves its low noise performance without the need of an external noise bypass capacitor.

The A6150 can provide output value in the range of 1.2V~5.0V every 0.1V increasing. The A6150 also can be customized on request.

The A6150 includes high accuracy voltage reference, error amplifier, current limit circuit and output driver module, The A6150 has excellent load and line transient response and good temperature characteristics, when can assure the stability of chip and power system. And it uses trimming technique to guarantee output voltage accuracy within ±2%.

The A6150 is available in SOT-25 and SC70-5 package

ORDERING INFORMATION

Package Type	Part Number	
SOT-25	E5	A6150E5R-XXZ
		A6150E5VR-XXZ
SC70-5	C5	A6150C5R-XX
		A6150C5VR-XX
Note	XX: Output Voltage 25=2.5V, 33=3.3V Z: Output Type A & B See Pin description V: Green Package R: Tape & Reel	
AiT provides all RoHS products Suffix " V " means Halogen free Package		

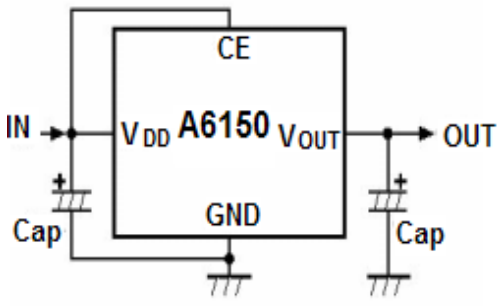
FEATURES

- Low Power Consumption: 25uA (Typ.)
- Low Output Noise (27uVRMS)
- Standby Mode: 0.1uA
- Low Dropout Voltage: 0.2V@100mA(Typ.)
- High Ripple Rejection: 65dB@1kHz(Typ.)
- Low Temperature Coefficient:±100ppm/°C
- Excellent Line Regulation: 0.05%/V
- Built-in chip Enable Circuit
- Output Voltage Range: 1.2V~5.0V
- Highly Accurate: ±2% (±1% customized)
- Output Current Limit
- Available in SOT-25 and SC70-5 package

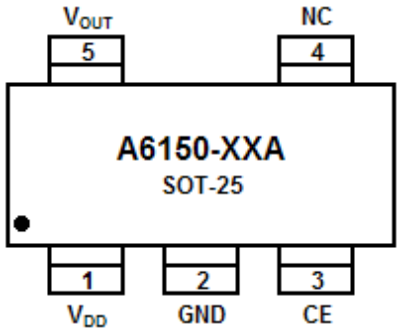
APPLICATION

- Power Source for Cellular Phones and various kind of PCs
- Battery Powered Equipment
- Power Management of MP3, PDA, DSC, Mouse, PS2 Games
- Reference Voltage Source
- Regulation after Switching Power

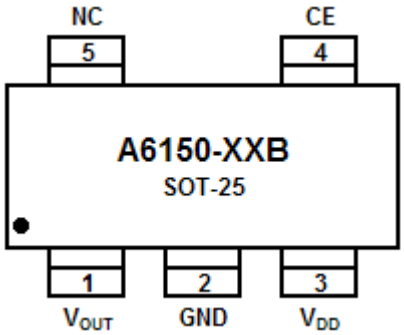
Typical Application



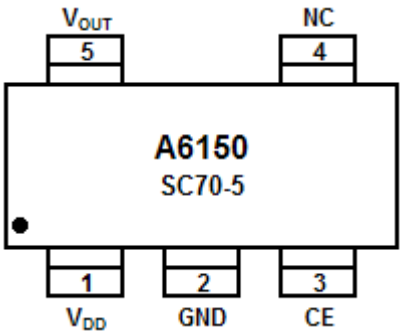
PIN DESCRIPTION



Top View



Top View



Top View

Pin Number			Symbol	Function
SOT-25A	SOT-25B	SC-70-5		
5	1	5	V_{OUT}	Output Pin
1	3	1	V_{DD}	Input Pin
2	2	2	GND	Ground Pin
3	4	3	CE	Enable Pin
4	5	4	NC	No Connection

ABSOLUTE MAXIMUM RATINGS

Max Input Voltage	8V
Junction Temperature(T_J)	125°C
Output Current	200mA
Power Dissipation (SOT-25)	200mW
Power Dissipation (SC-70-5)	200mW
Storage Temperature (Ts)	-45°C~150°C
Lead Temperature and Time	260°C, 10S

Stresses above 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 in the Electrical Characteristics are not implied. Exposure to absolute maximum rating conditions for extended periods may affect device reliability.

THERMAL RESISTANCE

Package	θ_{JA}	θ_{JC}
SOT-25	250°C/W	130°C/W
SC70-5	333°C/W	170°C/W

NOTE: Thermal Resistance is specified with approximately 1 square of 1 oz copper.

ELECTRICAL CHARACTERISTICS

Test Conditions: C_{IN}=1uF, C_{OUT}=2.2uF, T_A=25°C, unless otherwise noted.

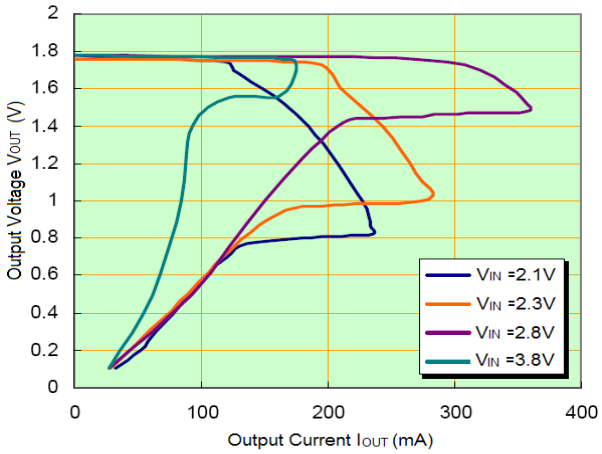
Symbol	Parameter	Conditions	Min	Typ	Max	Unit
V_{IN}	Input Voltage		1.8		8	V
V_{OUT}	Output Voltage	Vin=Set Vout+1V 1mA≦Iout≦30mA	V_{OUT} x0.98		V_{OUT} x1.02	V
I_{OUT} (Max)	Max Output Current	V_{IN} - V_{OUT} =1V	150			mA
Dropout Voltage	Input-Output Voltage Differential	Refer to the Electrical Characteristics by output voltage				
ΔV_{OUT} $\Delta V_{IN} \times V_{OUT}$	Line Regulation	I_{OUT}=40mA 1.6V≦Vin≦8V		0.05	0.2	%/V
$\Delta V_{OUT} / \Delta I_{OUT}$	Load Regulation	Vin=Set Vout+1V 1mA≦Iout≦80mA		12	40	mV
Iss	Supply Current	Vin=Set Vout+1V		25	50	uA
$I_{STANDBY}$	Supply Current (Standby)	Vin=Set Vout+1V, V_{CE}=GND		0.1	1.0	uA
ΔV_{OUT} $\Delta T \cdot V_{OUT}$	Output Voltage Temperature Coefficiency	I_{OUT}=30mA		±100		ppm/°C
PSRR	Ripple Rejection	F=1kHz, Ripple=0.5Vp-p Vin=Set Vout+1V		65		dB
I_{LIM}	Short Current Limit	V_{OUT} =0V		20		mA
Rpd	CE Pull down Resistance		2.0	5.0	10.0	mΩ
V_{CEH}	CE Input Voltage "H"		1.5		Vin	V
V_{CEL}	CE Input Voltage "L"		0		0.25	V
EN	Output Noise	BW=10Hz~100kHz		27		uV_{RMS}

ELECTRICAL CHARACTERISTICS BY OUTPUT VOLTAGE

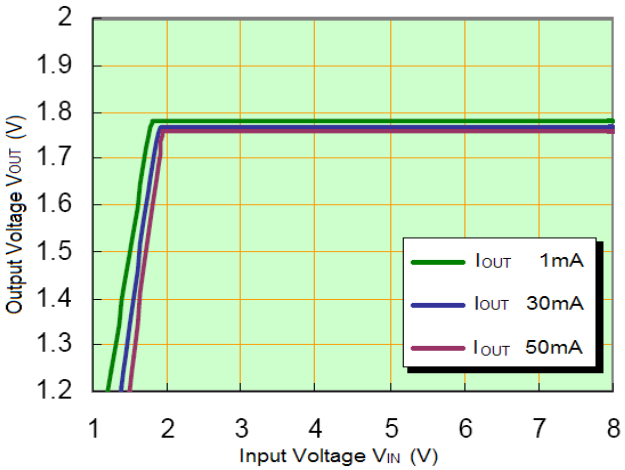
Output Voltage V_{OUT} (V)	Dropout Voltage, V_{DIF} (V)		
	Condition	Typ.	Max
V_{OUT} =1.5V	I_{OUT} =120mA	0.38	0.70
V_{OUT} =1.6V		0.36	0.65
V_{OUT} =1.7V		0.34	0.60
1.8V≦Vout≦2.0		0.32	0.55
2.1V≦Vout≦2.7		0.28	0.60
2.8V≦Vout≦4.0		0.22	0.35

TYPICAL PERFORMANCE CHARACTERISTICS

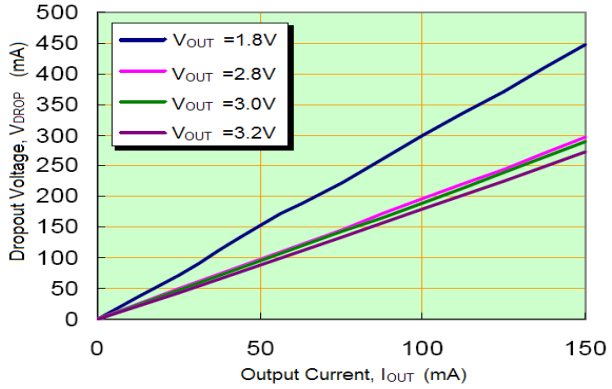
1. Output Voltage vs. Output Current
(with Output short protection)



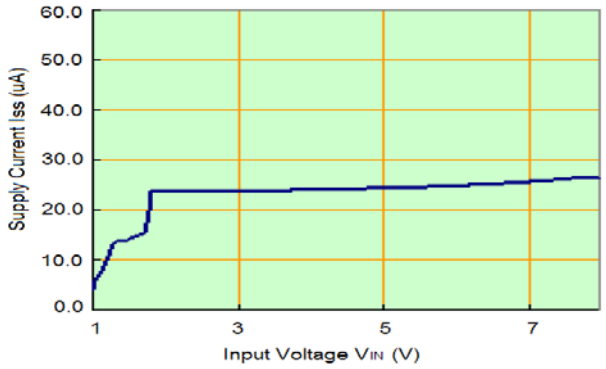
2. Output Voltage vs. Input Voltage



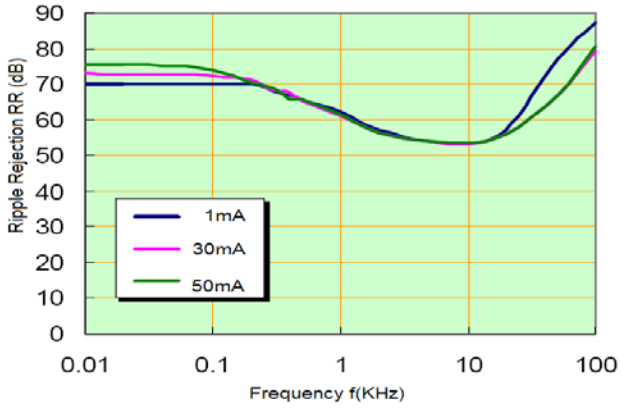
3. Dropout Voltage vs. Output Current



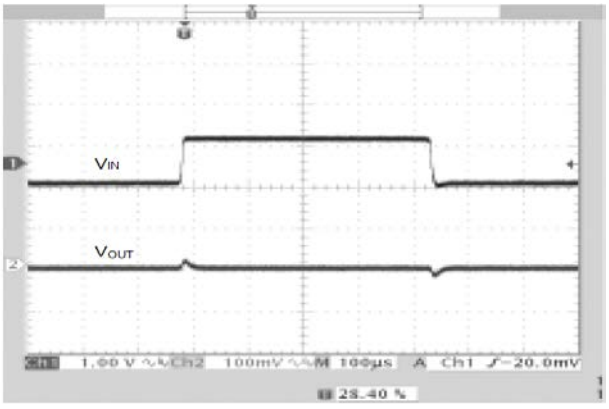
4. Supply Current vs. Input Voltage
Output: 1.8V



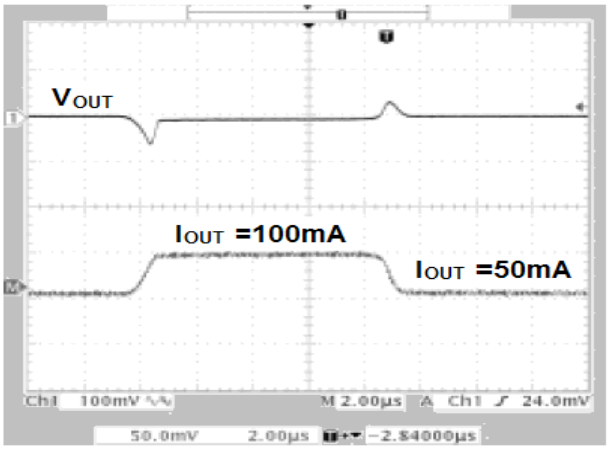
5. Ripple Rejection vs. Frequency



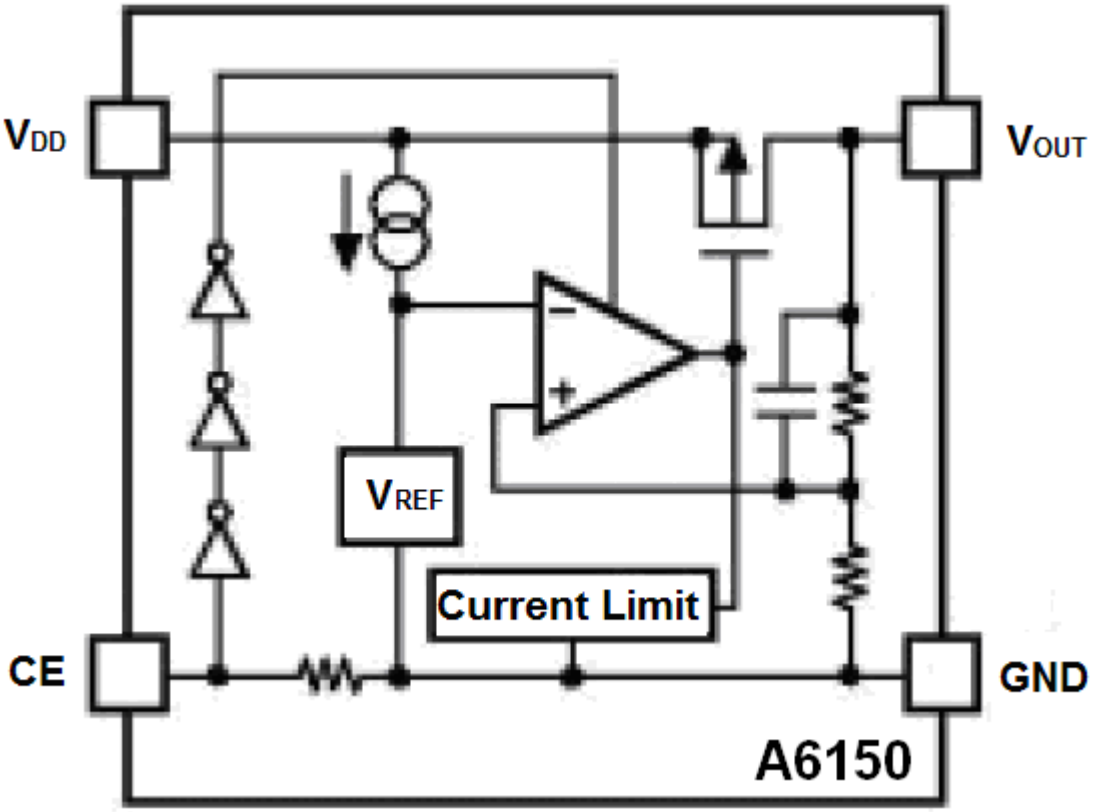
6. Line Transient Response



7. Load Transient Response



BLOCK DIAGRAM

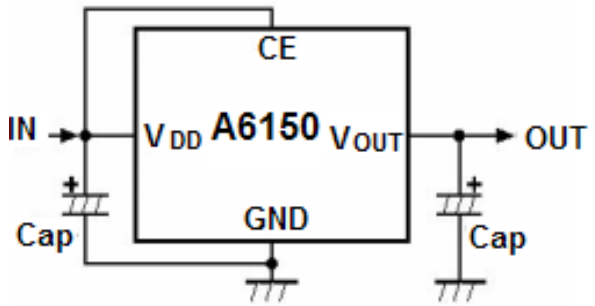


DETAILED INFORMATION

A6150 series is a group of positive voltage output, low noise, low power consumption, low dropout voltage regulator.

Typical Circuit

A6150 typical circuit as follows:



Input Capacitor (C_{IN})

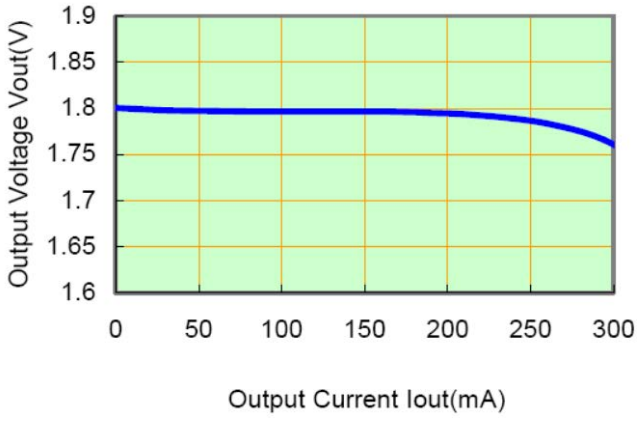
Input capacitor (C_{IN}=1uF) is recommended in all application circuit.

Output Capacitor (C_{OUT})

Output Capacitor (C_{OUT} = 1uF / 2.2uF) is recommended in all application to assure the stability of circuit.

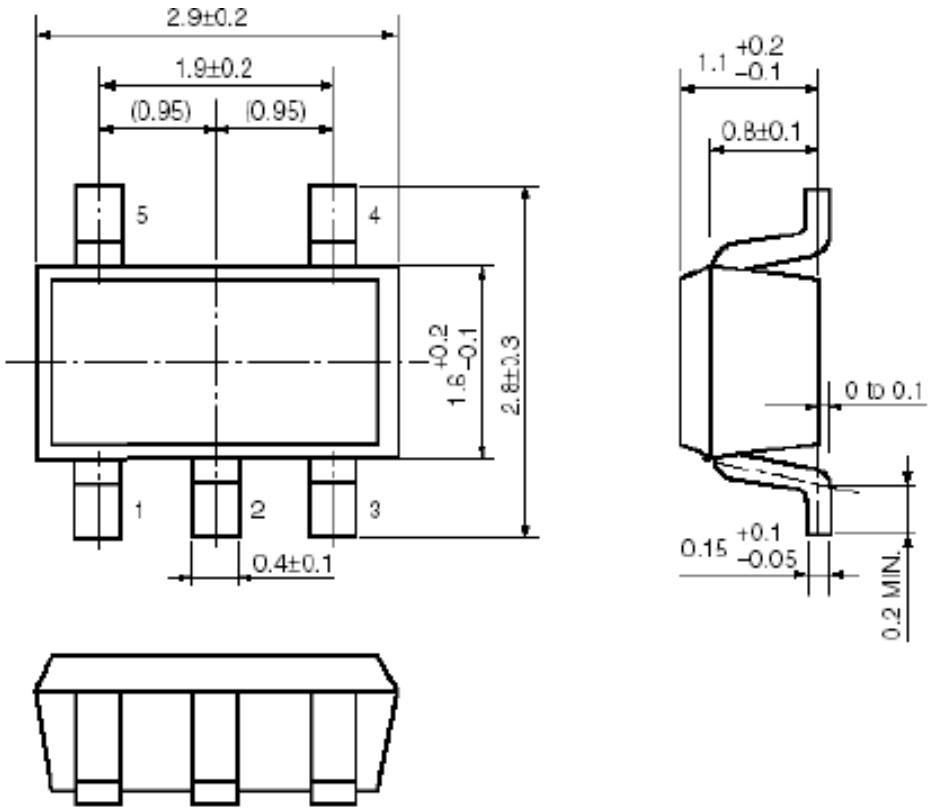
Output Voltage vs. Output Current

Example: A6150-18 (1.8V output)

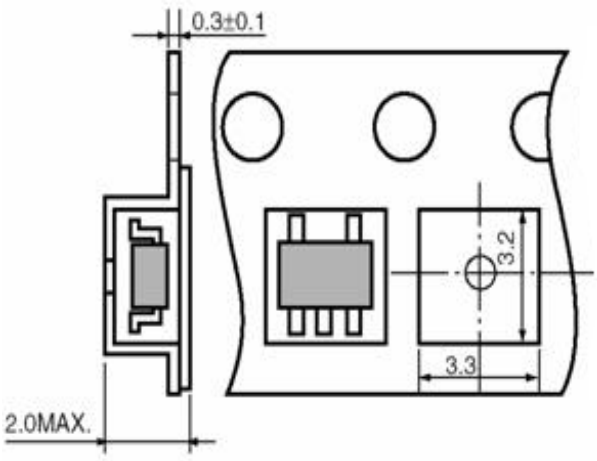


PACKAGE INFORMATION

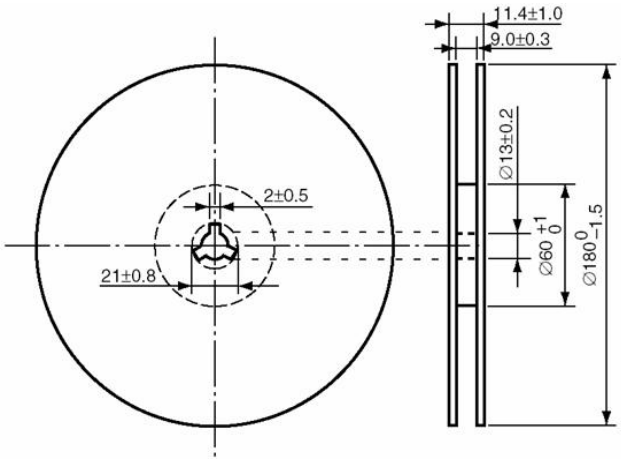
Dimension in SOT-25 (Unit: mm)



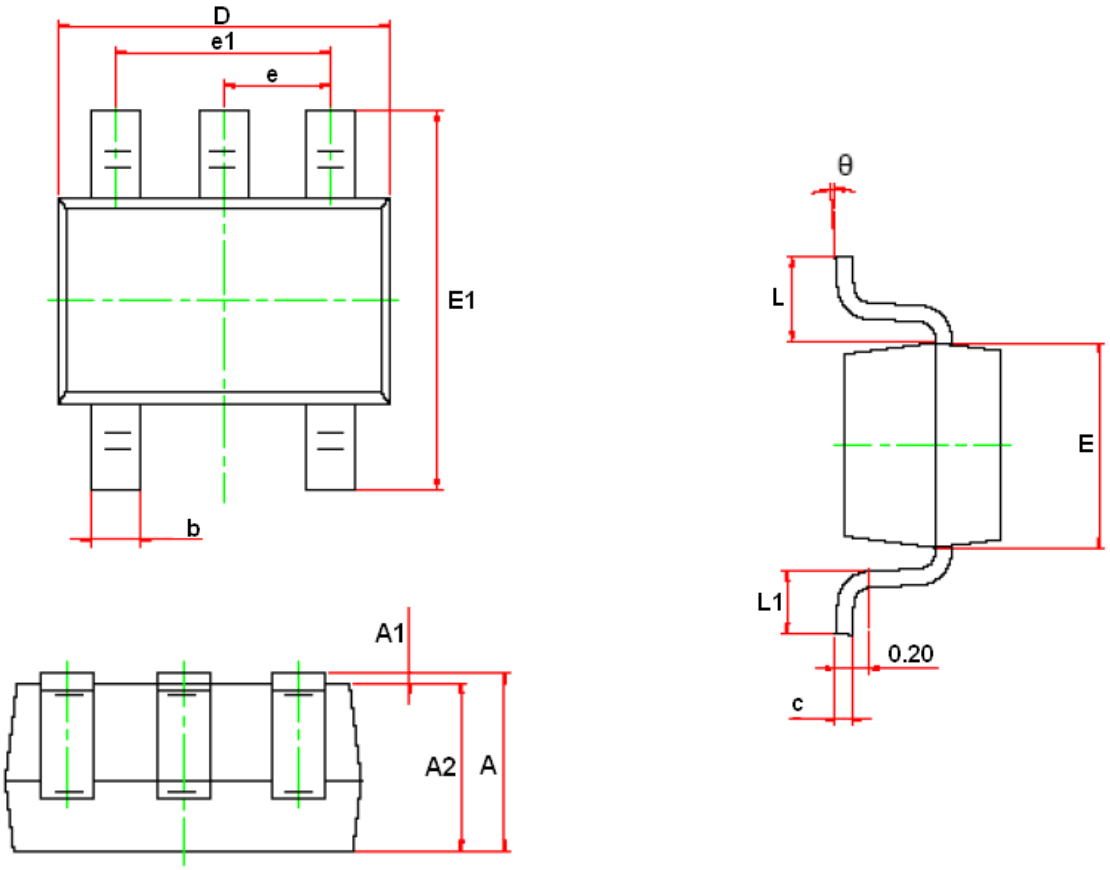
Tape Dimension



Reel Dimension



Dimension in SC70-5 (Unit: mm)



Symbol	Dimensions in Millimeters	
	Min	Max
A	0.900	1.100
A1	0.000	0.100
A2	0.900	1.000
b	0.150	0.350
c	0.080	0.150
D	2.000	2.200
E	1.150	1.350
E1	2.150	2.450
e	0.065 TYP	
e1	1.200	1.400
L	0.525 REF	
L1	0.260	0.460
θ	0°	8°

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