High Speed LDO Regulators, Low ESR Cap. low noise, ME6211 Series

Description:

The ME6211 series are highly accurate, low noise, CMOS LDO Voltage Regulators. Offering low output noise, high ripple rejection ratio, low dropout and very fast turn-on times, the ME6211 series is ideal for today's cutting edge mobile phone. Internally the ME6211 includes a reference voltage source, error amplifiers, driver transistors, current limiters and phase compensators. The ME6211's current limiters' foldback circuit also operates as a short protect for the output current limiter and. the output pin. The ME6211 series is also fully compatible with low ESR ceramic capacitors, reducing cost and improving output stability. This high level of output stability is maintained even during frequent load fluctuations, due to the excellent transient response performance and high PSRR achieved across a broad range of frequencies.The CE function allows the output of regulator to be turned off, resulting in greatly reduced power consumption.

Features:

- Maximum Output Current: 500mA（Vin＝5V,Vout＝3.3V）
- Dropout Voltage: 100mV@Iout=100mA
- Operating Voltage Range: 2V～6.5V
- Highly Accuracy: ±2％
- Low Power Consumption: 50uA（TYP.）
- Standby Current: 0.1uA（TPY.）
- High Ripple Rejection: 75dB@1KHz（ME6211C33）
- Low output noise: 50uVrms
- Line Regulation: 0.05％（TYP.）
- Ultra Small Packages: SOT89，SOT23，DFN6L

Selection Guide:

ME 62 11 X XX X X

- Environmental mark
- Package:
  e.g.： P-SOT89
  M-SOT23
  D-DFN
- Output Voltage:
  e.g.： 15-1.5V
  30-3.0V
  33-3.3V
 ……
- Version or Function
- Product Type
- Product series
- Microne
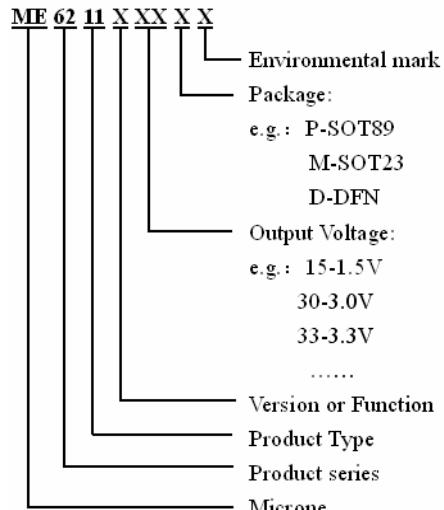
Typical Application:

- Mobile phones
- Cordless phones, radio communication equipment
- Portable games
- Cameras, Video cameras
- Reference voltage sources
- Battery powered equipment

Typical Application Circuit:
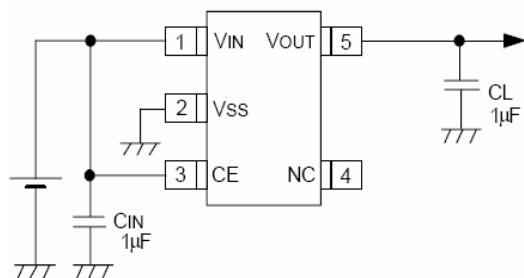
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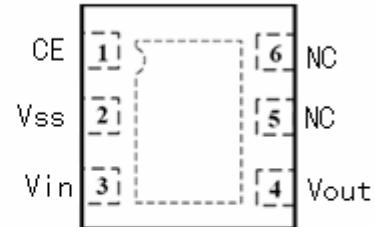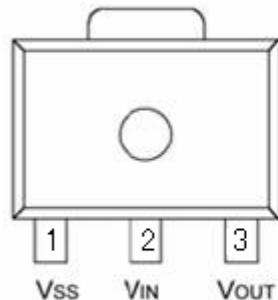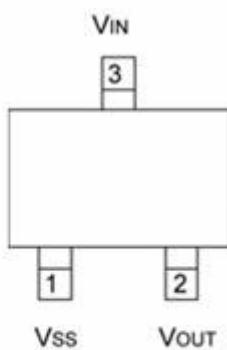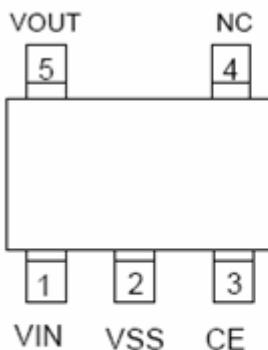
SOT23-5   SOT23-3   SOT89-3   DFN6L

Pin Assignment：

ME6211AXX

Pin Number		Pin Name	Functions
SOT23-3	SOT89-3		
1	1	Vss	Ground
2	3	Vout	Output
3	2	Vin	Power Input

ME6211CXX

Pin Number		Pin Name	Functions
SOT23-5	DFN6L		
1	3	Vin	Power Input
2	2	Vss	Ground
3	1	CE	ON / OFF Control
4	5,6	NC	NC
5	4	Vout	Output

Absolute Maximum Ratings:

Parameter		Symbol	Ratings	Units
Input Voltage		Vin	6.5	V
Output Current		Iout	600	mA
Output Voltage		Vout	Vss−0.3～Vin+0.3	V
CE Pin Voltage		Vce	Vss−0.3～Vin+0.3	V
Power Dissipation	SOT23	Pd	250	mW
	DFN		300	
	SOT89		500	
Operating Temperature Range		Topr	−40～+85	℃
Storage Temperature Range		Tstg	−55～+125	℃

Block Diagram:
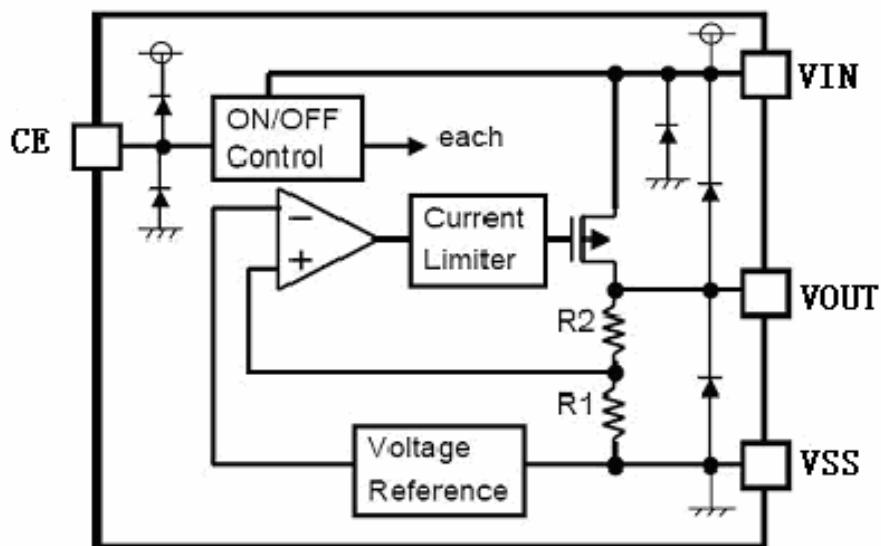
Electrical Characteristics:

ME6211C15 (Vin=Vout+1V，Cin=Cout=1uF，Ta=25°C unless otherwise noted)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Units
Output Voltage (Note 2)	V_{OUT}(E)	I_{OUT}=30mA, V_{IN}=Vout+1V	X 0.98	V_{OUT} (T) (Note 1)	X 1.02	V
Maximum Output Current	I_{OUT}max	V_{IN}=Vout+1V		300		mA
Load Regulation	ΔV_{OUT}	V_{IN}=Vout+1V, 1mA≤I_{OUT}≤100mA		9		mV
Dropout Voltage (Note 1)	V_{dif1}	I_{OUT} =100mA		200		mV
	V_{dif2}	I_{OUT} =200mA		400		mV
Supply Current	I_{SS}	V_{IN}=Vout+1V		45		μA
Stand-by Current	I_{CEL}	Vce＝0V		0.1		μA
Line Regulation	$\dfrac{\Delta V_{OUT}}{\Delta V_{IN} \cdot V_{OUT}}$	I_{OUT} =40mA Vout+1V ≤V_{IN}≤6.5V		0.05		%/V
Output noise	EN	I_{OUT} =40mA，300Hz~50kHz		50		uVrms
Ripple Rejection Rate	PSRR	Vin= [Vout+1]V +1Vp-pAC I_{OUT} =50mA,f=1kHz		70		dB

ME6211C28

(Vin=Vout+1V，Cin=Cout=1uF，Ta=25°C unless otherwise noted)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Units
Output Voltage	V_{OUT}(E) (Note 2)	I_{OUT}=30mA, V_{IN}=Vout+1V	X 0.98	V_{OUT} (T) (Note 1)	X 1.02	V
Maximum Output Current	I_{OUT}max	V_{IN}=Vout+1V		450		mA
Load Regulation	ΔV_{OUT}	V_{IN}=Vout+1V, 1mA≤I_{OUT}≤100mA		7		mV
Dropout Voltage (Note 1)	V_{dif1}	I_{OUT} =100mA		110		mV
	V_{dif2}	I_{OUT} =200mA		220		mV
Supply Current	I_{SS}	V_{IN}=Vout+1V		55		μA
Stand-by Current	I_{CEL}	Vce＝0V		0		μA
Line Regulation	$\dfrac{\Delta V_{OUT}}{\Delta V_{IN} \cdot V_{OUT}}$	I_{OUT} =40mA Vout+1V ≤V_{IN}≤6.5V		0.04		%/V
Output noise	EN	I_{OUT} =40mA， 300Hz~50kHz		50		uVrms
Ripple Rejection Rate	PSRR	Vin= [Vout+1]V +1Vp-pAC I_{OUT} =50mA,f=1kHz		70		dB

ME6211C30

(Vin=Vout+1V，Cin=Cout=1uF，Ta=25°C unless otherwise noted)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Units
Output Voltage	V_{OUT}(E) (Note 2)	I_{OUT}=30mA, V_{IN}=Vout+1V	X 0.98	V_{OUT} (T) (Note 1)	X 1.02	V
Maximum Output Current	I_{OUT}max	V_{IN}=Vout+1V		500		mA
Load Regulation	ΔV_{OUT}	V_{IN}=Vout+1V, 1mA≤I_{OUT}≤100mA		8		mV
Dropout Voltage (Note 1)	V_{dif1}	I_{OUT} =100mA		100		mV
	V_{dif2}	I_{OUT} =200mA		210		mV
Supply Current	I_{SS}	V_{IN}=Vout+1V		60		μA
Stand-by Current	I_{CEL}	Vce＝0V		0		μA
Line Regulation	$\dfrac{\Delta V_{OUT}}{\Delta V_{IN} \cdot V_{OUT}}$	I_{OUT} =40mA Vout+1V ≤V_{IN}≤6.5V		0.05		%/V
Output noise	EN	I_{OUT} =40mA， 300Hz~50kHz		50		uVrms
Ripple Rejection Rate	PSRR	Vin= [Vout+1]V +1Vp-pAC I_{OUT} =50mA,f=1kHz		75		dB

ME6211A/C33

(Vin=Vout+1V，Cin=Cout=1uF，Ta=25°C unless otherwise noted)

| Parameter	Symbol	Conditions	Min.	Typ.	Max.	Units
Output Voltage	$V_{OUT}(E)$ (Note 2)	I_{OUT}=30mA, V_{IN}=Vout+1V	X 0.98	V_{OUT} (T) (Note 1)	X 1.02	V
Maximum Output Current	I_{OUT}max	V_{IN}=Vout+1V		500		mA
Load Regulation	ΔV_{OUT}	V_{IN}=Vout+1V, 1mA≤I_{OUT}≤100mA		9		mV
Dropout Voltage (Note 1)	V_{dif1}	I_{OUT} =100mA		120		mV
	V_{dif2}	I_{OUT} =200mA		260		mV
Supply Current	I_{SS}	V_{IN}=Vout+1V		55		μA
Stand-by Current	I_{CEL}	Vce＝0V		0.1		μA
Line Regulation	$\dfrac{\Delta V_{OUT}}{\Delta V_{IN} \cdot V_{OUT}}$	I_{OUT} =40mA Vout+1V ≤V_{IN}≤6.5V		0.05		%/V
Output noise	EN	I_{OUT} =40mA， 300Hz~50kHz		50		uVrms
Ripple Rejection Rate	PSRR	Vin= [Vout+1]V +1Vp-pAC I_{OUT} =50mA,f=1kHz		75		dB

Note ：

1. V_{OUT} (T) ： Specified Output Voltage

2.V_{OUT} (E) ： Effective Output Voltage (le. The output voltage when "V_{OUT} (T)+1.0V"is provided at the Vin pin while maintaining a certain Iout value.)

3.V_{dif} ： V_{IN1} −V_{OUT} (E)'

   V_{IN1} ： The input voltage when V_{OUT}(E)' appears as input voltage is gradually decreased.

   V_{OUT} (E)'=A voltage equal to 98% of the output voltage whenever an amply stabilized Iout   {V_{OUT} (T)+1.0V} is input.

Type Characteristics

Iout VS.Vout

ME6211C33

Vin VS.Vout

ME6211C33

| 0mA |
| 1mA |
| 30mA |
| 100mA |

Dropout(mV)

Iout VS.Dropout

ME6211C33

Iout(mA)

Iin(uA)

Vin VS.No load Iin

ME6211C33

Vin(V)
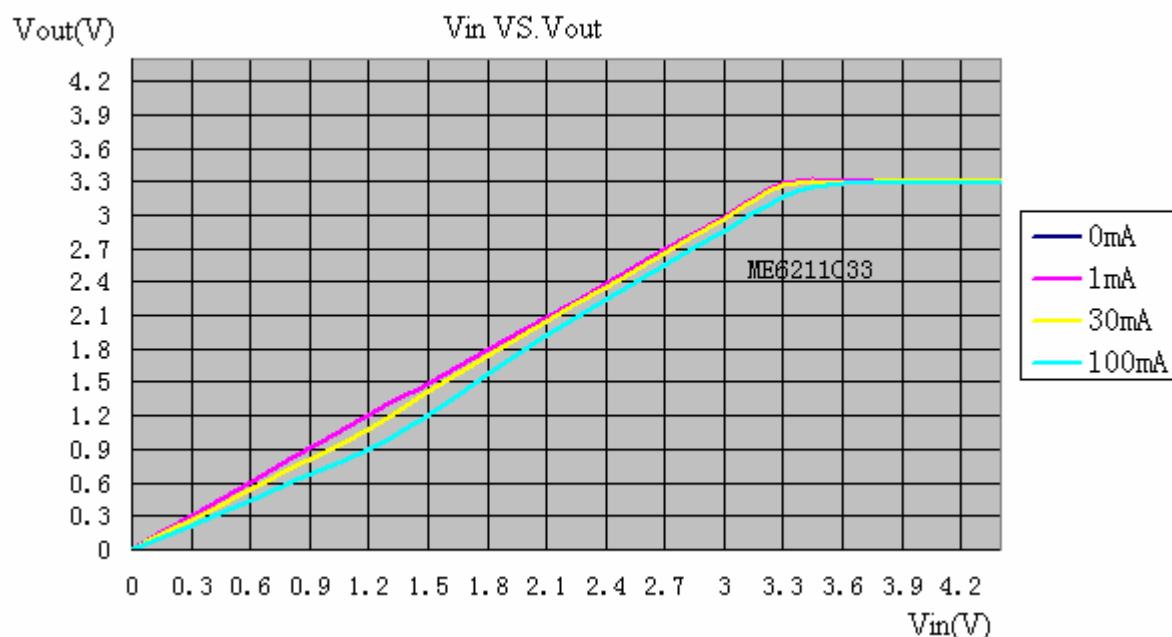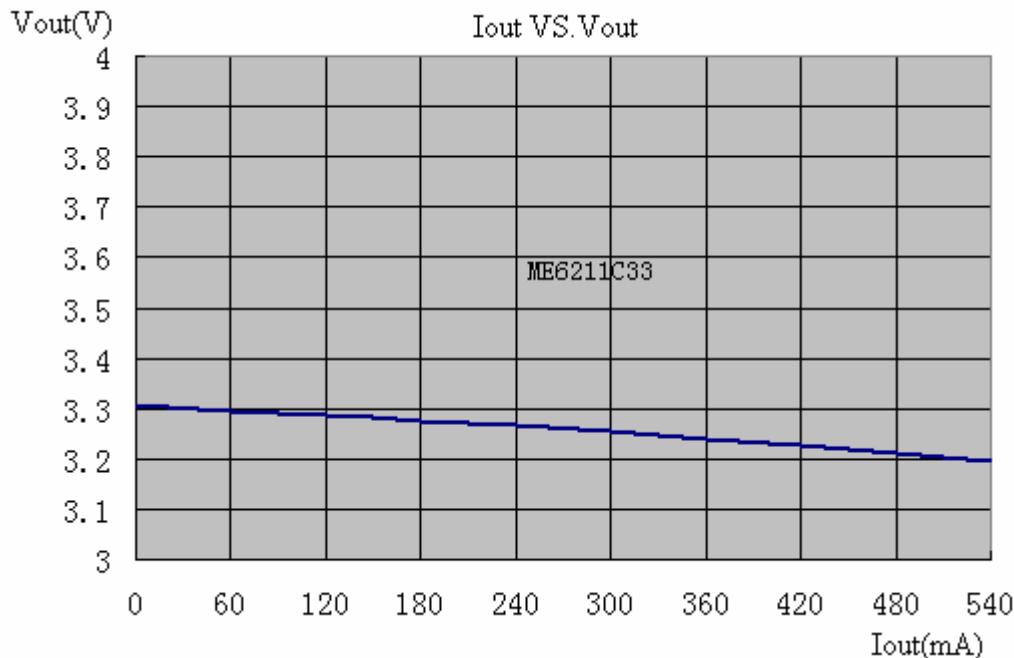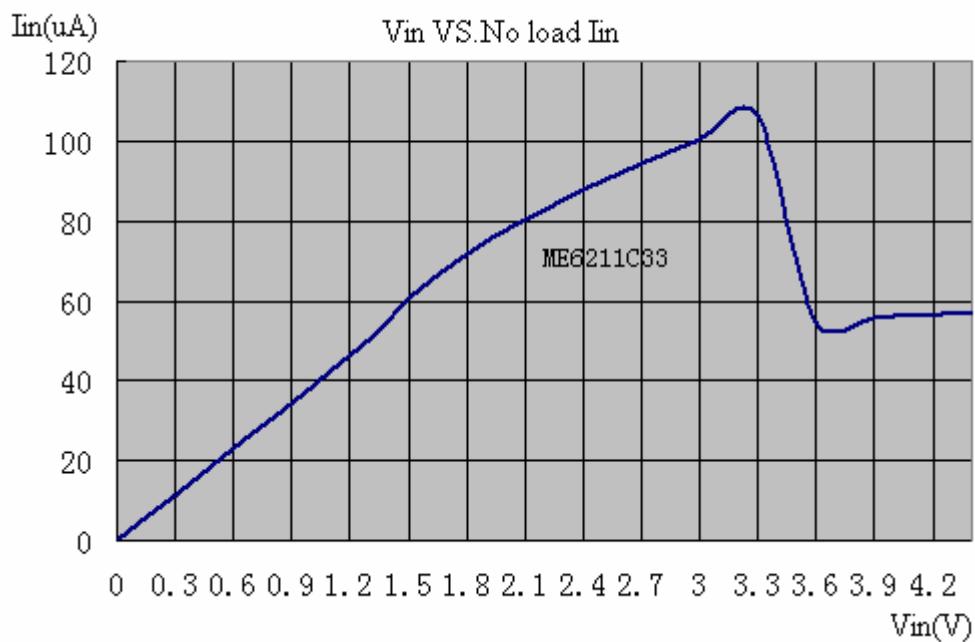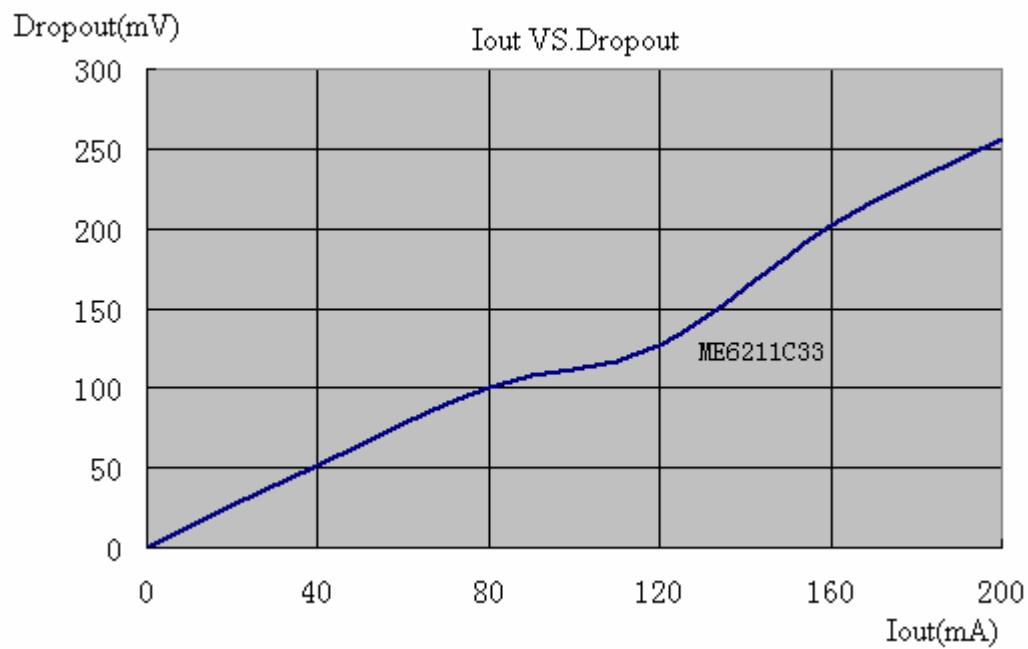
Packaging Information:

SOT23-5

SOT23-3

SOT89-3

PACKAGE OUTLINE

DFN-6L
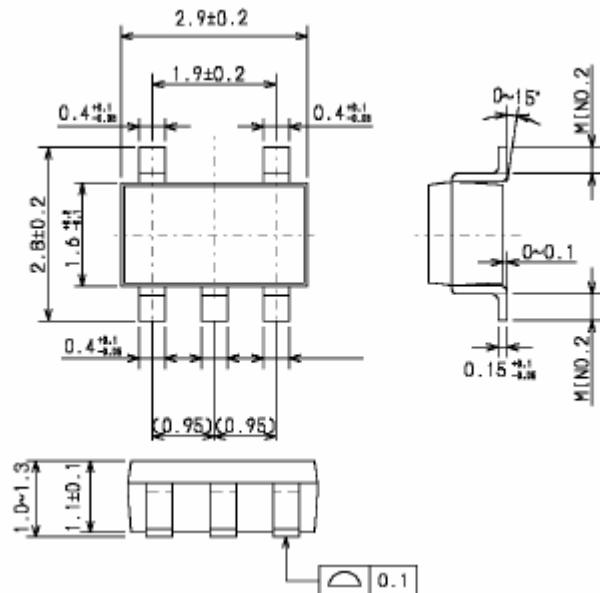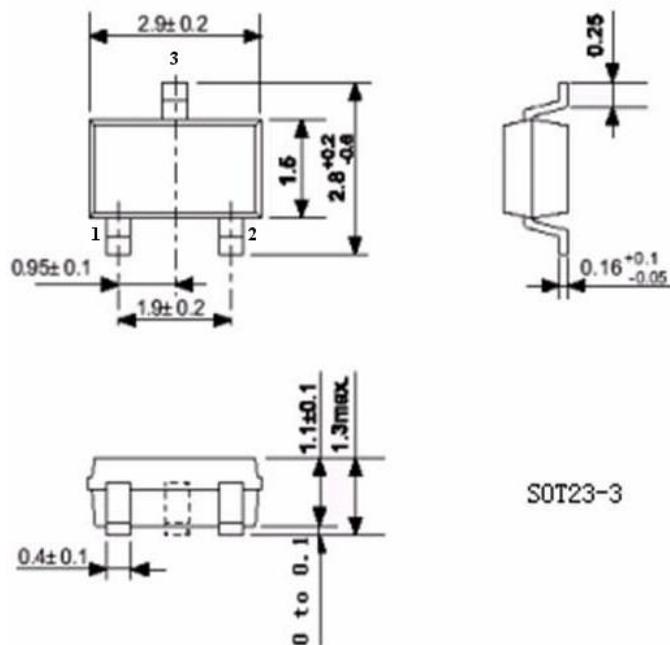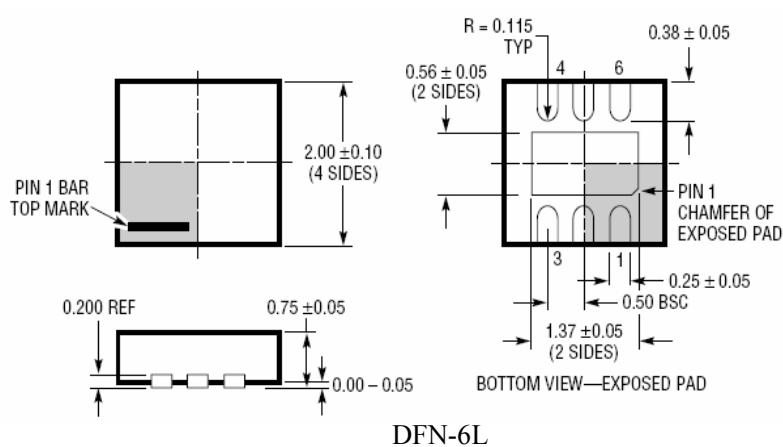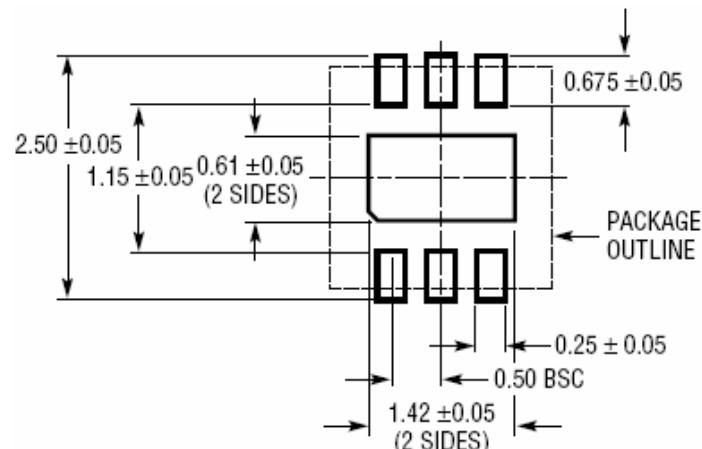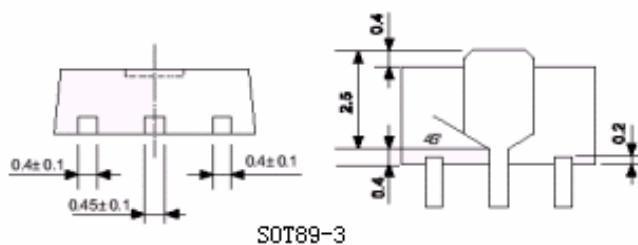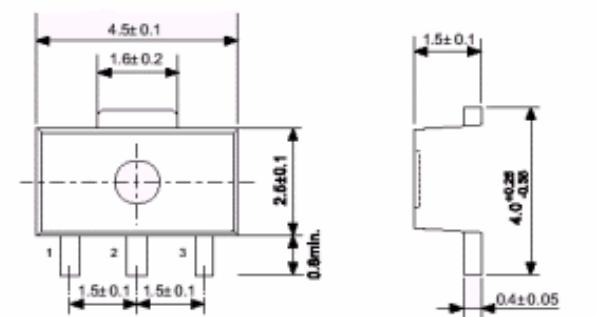
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