6V Input , 500mA , Good Transient Response Low Voltage , CMOS LDO

Description

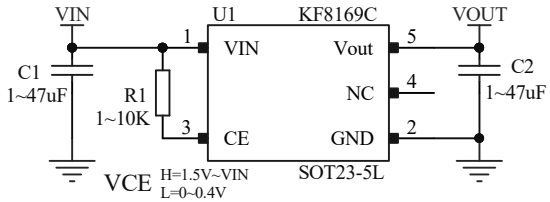
The KF8169C series are CMOS-based LDO regulators featuring 500mA output current. Internally, the IC consists of a voltage reference unit, an error amplifier and a current limit circuit. KF8169C also features an excellent line transient response, super high ripple rejection and low noise.

The series are very suitable for the battery-powered equipment such as RF applications and other systems requiring a quiet voltage source. Extends battery life in portable electronics

Features

- Input Voltage Range: 2V~6V
- Output Voltage Range: 1V~5V
- Output Current: 500mA
- Quiescent Current: 50uA
- Dropout Voltage: 150mV@150mA
- Voltage Accuracy: ±2%(Typ.)
- PSRR: 75dB at 1kHz
- Excellent Line and Load Transient Response
- Short-Circuit Protection
- Built-in Current Limiter
- Low Output Noise
- Over-Temperature Protection

Typical Application



Applications

- Portable consumer equipment
- Wireless handsets, Smart Phones
- Bluetooth, Digital cameras and Digital audio
- PDAs and other handheld products

Device Information

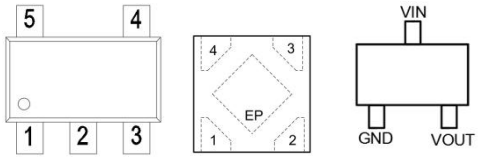
KF 8169 – XX C/D/M

1 ② ③ ④

①	Standard
②	Product Name
③	Output Voltage e.g. 25 = 2.5V
④	C: SOT23-5L Package
	D: DFN1X1-4 Package
	M: SOT23-3L Package

Pin Configuration

Symbol	Package Pin		
	SOT23-5L	DFN1010-4L	SOT23-3L
VIN	1	4	3
GND	2	2	1
CE	3	3	
NC	4		
VOUT	5	1	2



Absolute Maximum Ratings (1)

(Unless otherwise specified, all voltages are with respect to GND, TA=25°C)

PARAMETER		SYMBOL	RATINGS	UNITS
Input Voltage		V_{IN}	-0.3~7	V
Output Voltage		V_{OUT}	-0.3~5	V
Output Current		I_{OUT}	500	mA
Power Dissipation	SOT23-5	P_D	0.4	W
	DFN1X1-4			
	SOT23-3			
Operating Junction Temperature Range		T_J	-40~125	°C
Storage Temperature		T_{STG}	-40~125	°C
Lead Temperature(Soldering, 10 sec)		T_L	260	°C
Package Thermal Resistance	SOT23-5	θ_{JA}	250	°C/ W
	DFN1X1-4			
	SOT23-3			

(1). Stresses beyond 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-rated conditions for extended periods my affect device reliability.

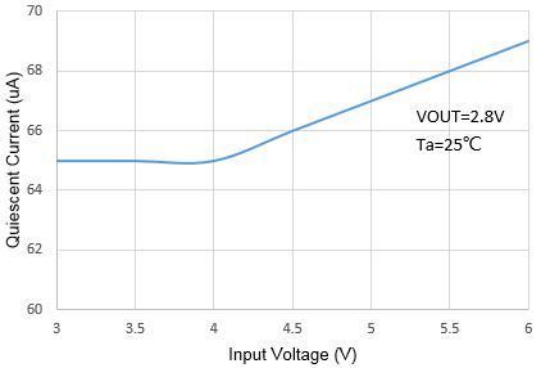
Electronics Characteristics

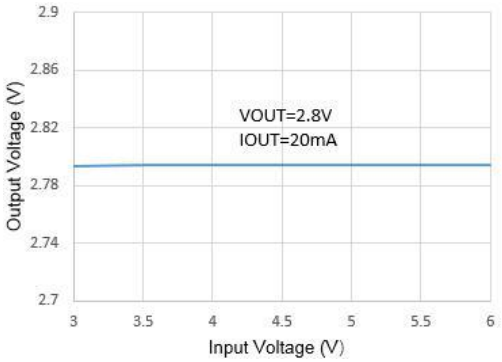
(Unless otherwise specified, VIN=VOUT+1V, CIN=COUT=1uF, TA=25°C)

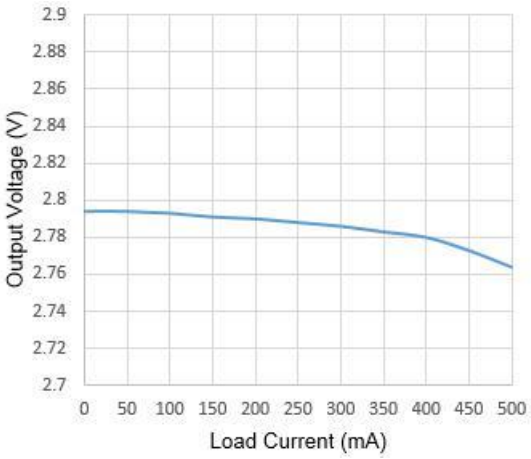
PARAMETER	SYMBOL	CONDITIONS	MIN	TYP	MAX	UNIT
Input Voltage	V_{IN}		2		6	V
Output Voltage	V_{OUT}		0.98 V_{OUT}	V_{OUT}	1.02 V_{OUT}	V
Dropout Voltage	V_{DIF}	I_{OUT} =150mA VOUT≥2.8V		150		mV
Quiescent Current	I_Q	I_{OUT}=0		50	100	uA
Shutdown current	I_{CEL}	V_{CE}=V_{SS}		0.1	1	uA
Line Regulation	$\triangle V_{LINE}$	I_{OUT} =10mA V_{OUT}+1V≤V_{IN}≤6V		0.01	0.2	%/V
Load Regulation	$\triangle V_{LOAD}$	V_{IN}=V_{OUT}+1V 1mA≤I_{OUT}≤100mA		10		mV
Temperature Coefficient	TC	I_{OUT}=10mA -40°C<T_A<125°C		50		ppm
Short Current	I_{SHORT}	V_{OUT} =V_{SS}		100		mA
Power Supply Rejection Ratio	PSRR	I_{OUT}=50mA 1kHz		75		dB
		I_{OUT}=50mA 10kHz		70		dB
CE "High"	VCE“H”		1.5		VIN	V
CE "Low"	VCE“L”				0.4	V
Output Noise		10Hz~100kHz		40		uVRMS
Discharge Resistance	$R_{DISCHRG}$	VIN=4.3V VCE=0V		40		Ω
Thermal Shutdown Temperature	T_{SD}			150		℃
Thermal Shutdown Hysteresis	$\triangle T_{SD}$			20		℃

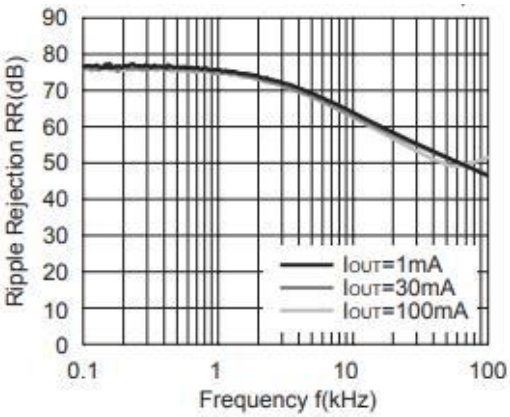
Typical Characteristics

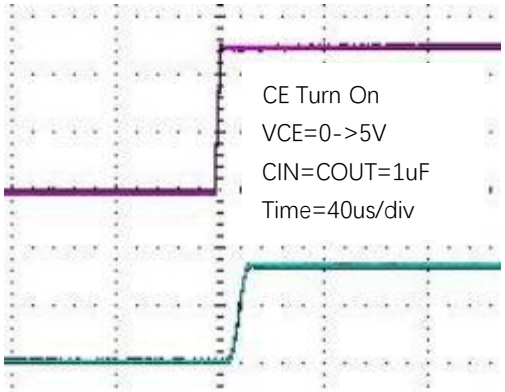
(Unless otherwise specified, VIN=VOUT+1V, CIN=COUT=1uF, TA=25°C)

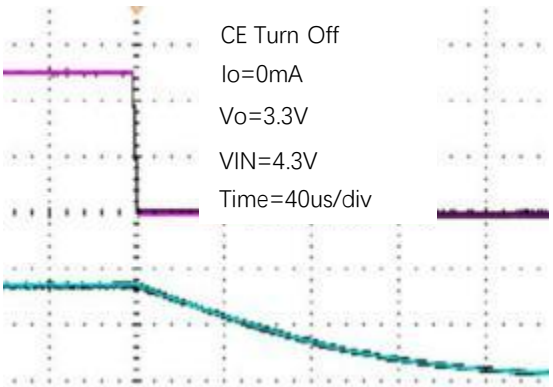


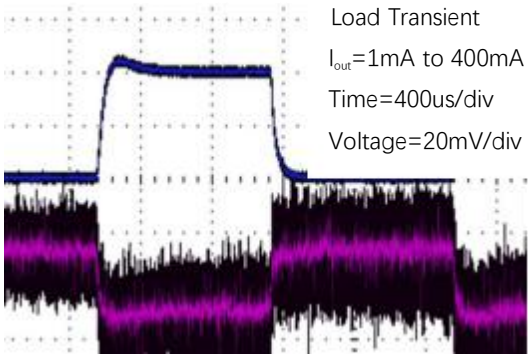


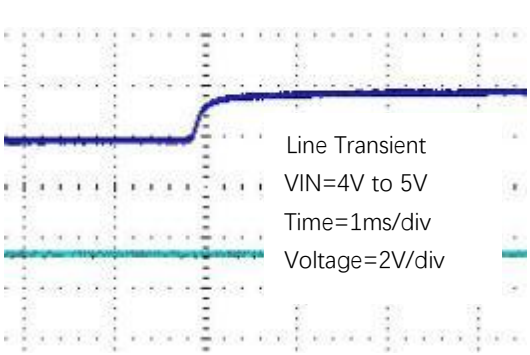




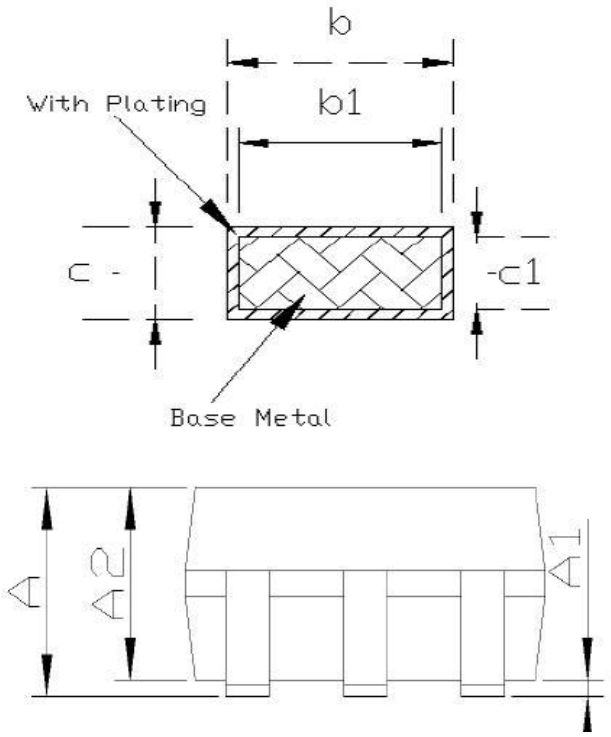






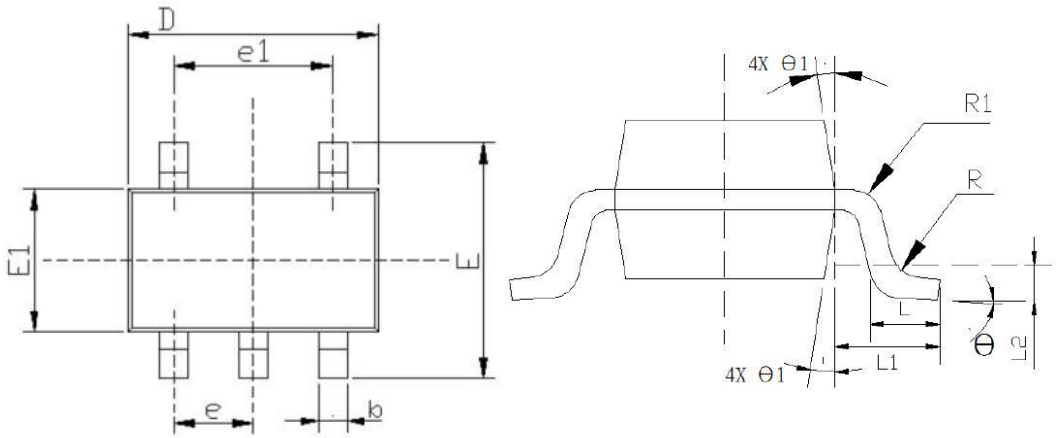


Package Information

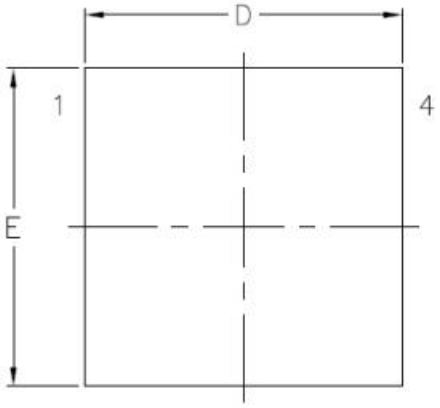


Common Dimensions (Units of Measure=Millimeter)			
SYMBOL	MINIMUM	NOMINAL	MAXIMUM
A	-	-	1.35
A1	0	-	0.15
A2	1.00	1.10	1.20
b	0.35	-	0.45
b1	0.32	-	0.38
c	0.14	-	0.20
c1	0.14	0.15	0.16
D	2.82	2.92	3.02
E	2.60	2.80	3.00
E1	1.526	1.626	1.726
e	0.90	0.95	1.00
e1	1.80	1.90	2.00
L	0.35	0.45	0.60
L1	0.6 REF		
L2	0.25 REF		
R	0.10	-	-
R1	0.10	-	0.25
θ	0°	4°	8°
θ 1	5°	10°	15°

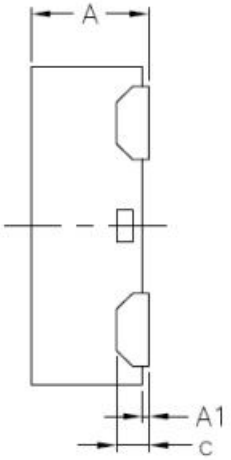
SOT23-5L



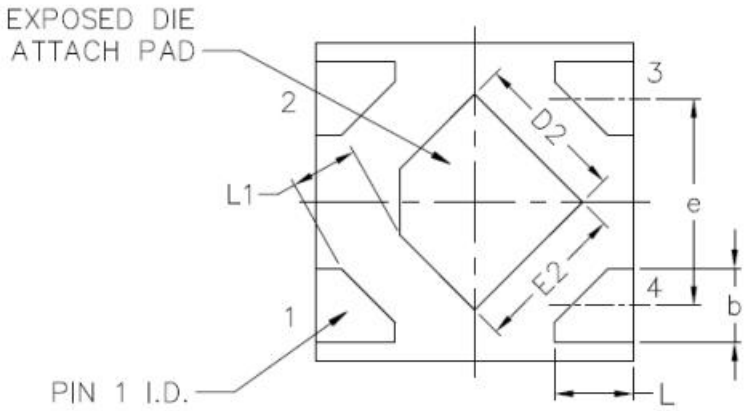
DFN1010-4L



TOP VIEW

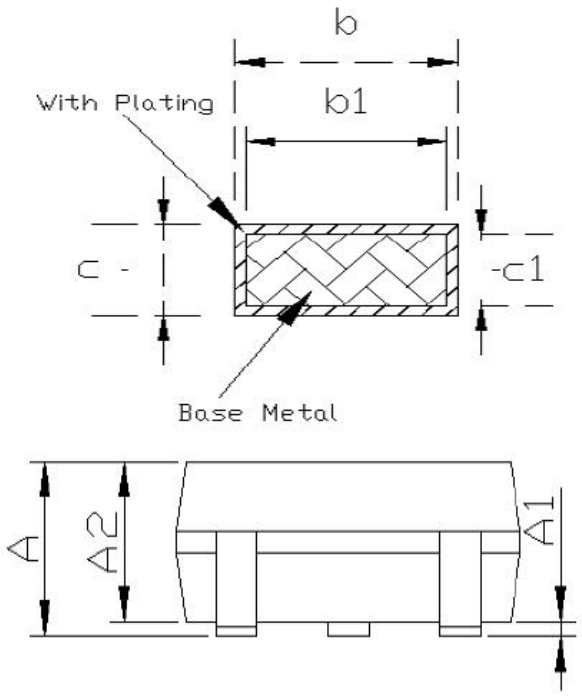


SIDE VIEW



BOTTOM VIEW

尺寸 / 标注	最小 (mm)	标准 (mm)	最大 (mm)	尺寸 / 标注	最小 (mm)	标准 (mm)	最大 (mm)
A	0.32	0.37	0.41	e		0.65 BSC	
A1	0.00	0.02	0.05	E	0.95	1.00	1.05
b	0.18	0.23	0.28	E2	0.43	0.48	0.53
c		0.102 REF		L	0.20	0.25	0.30
D	0.95	1.00	1.05	L1		0.205 REF	
D2	0.43	0.48	0.53				



Common Dimensions (Units of Measure=Millimeter)			
SYMBOL	MINIMUM	NOMINAL	MAXIMUM
A	-	-	1.35
A1	0	-	0.15
A2	1.00	1.10	1.20
b	0.35	-	0.45
b1	0.32	-	0.38
c	0.14	-	0.20
c1	0.14	0.15	0.16
D	2.82	2.92	3.02
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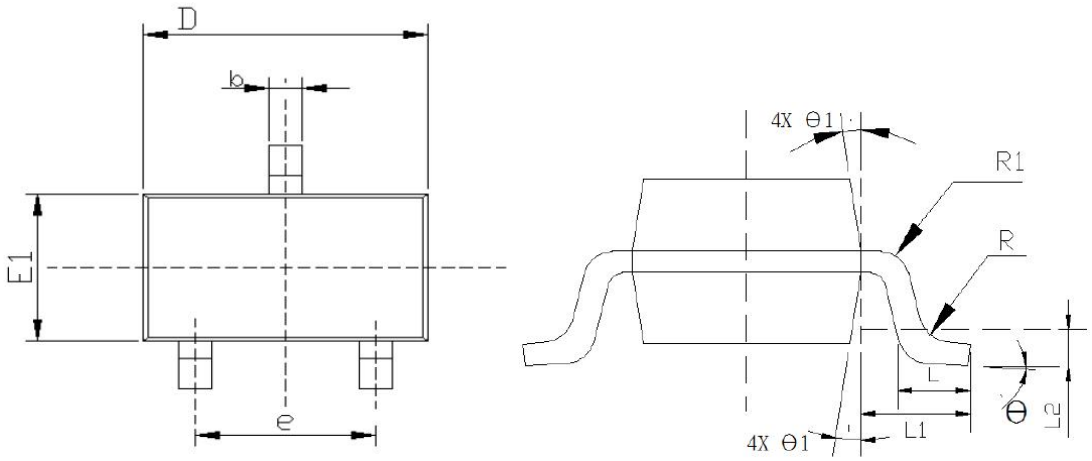
E1	1.526	1.626	1.726
e	0.90	0.95	1.00
e1	1.80	1.90	2.00
L	0.35	0.45	0.60
L1	0.6 REF		
L2	0.25 REF		
R	0.10	-	-
R1	0.10	-	0.25
θ	0°	4°	8°
θ 1	5°	10°	15°

SOT23-3L



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