



AnaSem Analog Semiconductor IC

VRD(Dual) Series

High Speed/Low Dropout/High Accuracy Dual CMOS Positive Voltage Regulator

Description

The VRD Series is a dual positive voltage regulator where high speed low dropout and highly accurate output were achieved by low current consumption. Because each regulator is completely separated, the crosstalk between each regulator can be reduced. The output voltage guarantees $\pm 1\%$ within the range of all temperatures by V_{ref} that the temperature characteristic is controlled. It corresponds to the low ESR capacitor as an output stabilization capacitor. The charged ESR capacitor can be discharged with an internal switch by making the $CE=V_{ss}$, as a result the V_{out} quickly returns to the V_{ss} level. To make the current capacity of the output transistor not exceeded, the overcurrent protection circuit is built in.

Feature

- Output voltage: 0.8 ~ 5.0V (Selectable 50mV Step)
- Operating voltage range: 1.6V ~ 6.0V
- High accuracy output voltage: $\pm 1\%$ (-40 ~ 85)
- Maximum output current: 250mA
- Dropout voltage: 60mV (Output: 3.0V Iout: 100mA)
- Low current consumption: Typ/25 μ A/Ch
- Stand-by current: Max 0.1 μ A
- High ripple rejectin: Typ/65dB at 1KHz
- Low ESR capacitor : 1.0 μ F ceramic capacitor
- Output capacitor can be rapidly discharged at $EN=V_{ss}$
- Operating temperature range: -40 to 85
- Built-in overcurrent protector
- Small package: SOT-26(400mW) LLP-6(600mW)

Product Number:

VRD 3A4CNL A , VRD 3A4CNT A

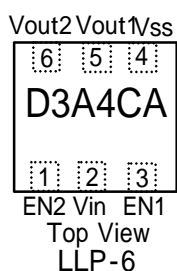
Applications

- Battery powered-devices
- Cellular phones
- Digital/Video cameras
- Portable games
- Handheld instruments

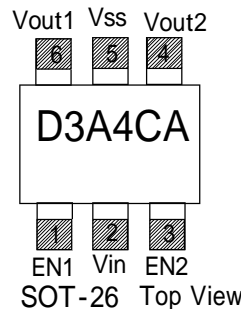
VRD	3C4B:Output Voltage Spec	N :Function Spec	T/L : Package	A :Version
AnaSem V/R D-Series	3A:3.05V/Vout1 4C:4.25V/Vout2	N :Input/1.6 ~ 6.0V Output/+0.8 ~ 5.0V	T:SOT-26 L:LLP-6	A : $\pm 1\%$ B : $\pm 20mV/$ -40 ~ +85

0	A	1	B	2	C	3	D	4	E	5	F	6	G	7	H	8	J	9	K
.00	.05	.10	.15	.20	.25	.30	.35	.40	.45	.50	.55	.60	.65	.70	.75	.80	.85	.90	.95

Pin Configuration

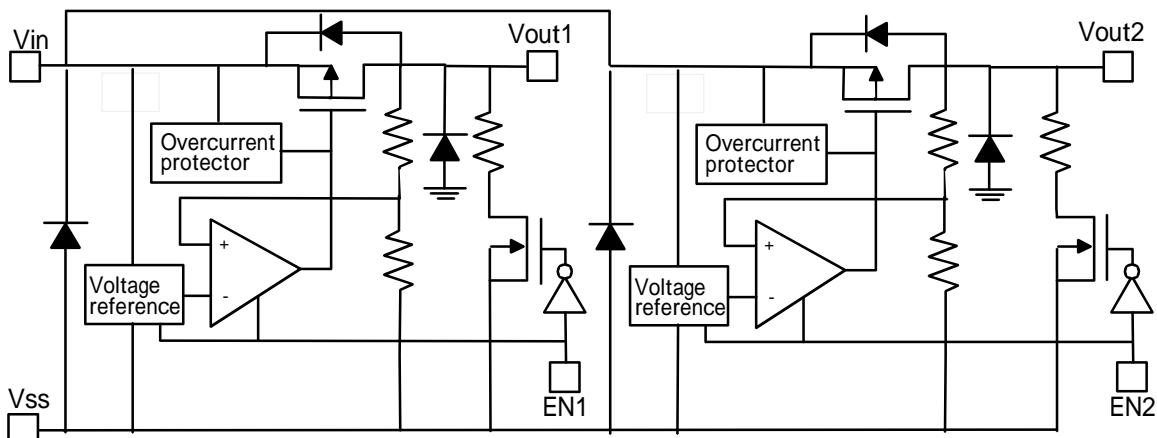


Pin	Name	Description
1	EN2	2 Ch Enable
2	Vin	Input Voltage
3	EN1	1 Ch Enable
4	Vss	Power Ground
5	Vout1	1 Ch Output
6	Vout2	2 Ch Output

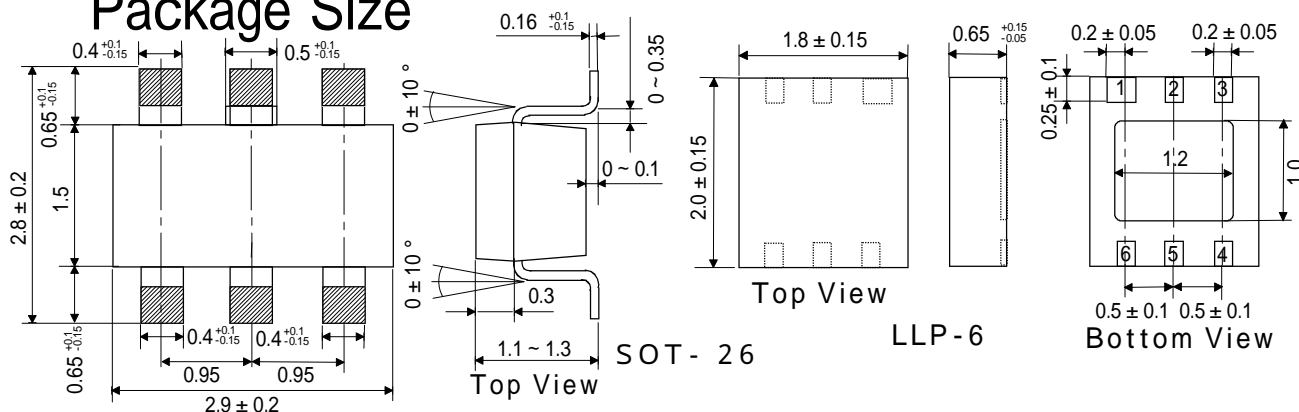


Pin	Name	Description
1	EN1	1 Ch Enable
2	Vin	Input Voltage
3	EN2	2 Ch Enable
4	Vout2	2 Ch Output
5	Vss	Power Ground
6	Vout1	1 Ch Output

Block Diagram



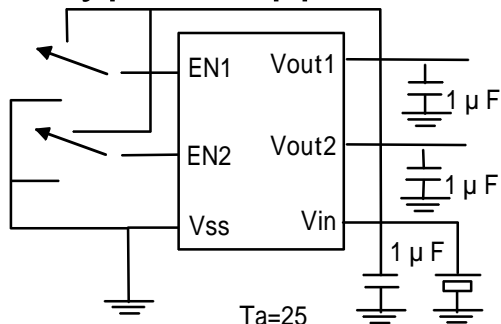
Package Size



Absolute Maximum Rating

Item	Sign	Value
Input Supply Voltage	Vin	-0.3V ~ +7.0V
Output Current	Iout	500mA
Output Voltage	Vout	Vss-0.3V ~ Vin+0.3V
Power Dissipation	SOT-26	Pd 400mW(ON PCB)
	LLP-6	Pd 600mW(ON PCB)
Operating Temperature Range	Topr	-40 ~ +85
Storage Temperature Range	Tstg	-50 ~ +125

Typical Application



Electric Characteristics

Item	Symbol	Measurement condition	Spec			Unit	
			Min	Typ	Max		
Output voltage	Vout	Vout+1.0V Vin 6.0V, Iout=30mA, -40 Ta +85	Vout 1.95V	Vout x0.99	Vout x1.01	V	
			Vout 1.9V	-20	+20	mV	
Output current	Iout	Vin Vout+1.0V	0.8V Vout 1.15V		250	mA	
			1.2V Vout 1.65V		250	mA	
			1.7V Vout 2.25V		250	mA	
			2.3V Vout 2.85V		250	mA	
			2.9V Vout 3.45V		250	mA	
			3.5V Vout 4.05V		250	mA	
			4.0V Vout 5.0V		250	mA	
Dropout voltage	Vdrop1 Vdrop2	Iout=100mA	0.8V Vout 1.15V		580	910	mV
			1.2V out 1.65V		210	340	mV
			1.7 Vout 2.25V		130	205	mV
			2.3 Vout 2.85V		100	150	mV
			2.9 Vout 3.45V		90	137	mV
			3.5 Vout 4.05V		85	125	mV
			4.0 Vout 5.0V		80	115	mV
Power dissipation	Idd	Vin=Vout+1.0V, Vout=Open, Iout=0mA		50	80	µA	
Standby current	Istb	EN=Vss		0.01	0.1	µA	
Input voltage	Vin		1.6		6.0	V	
Load regulation	Vout1,2	Vin=Vout+1.0V, 1mA Iout 100mA		10	40	mV	
Line regulation	$\frac{Vout}{Vin} \cdot \frac{Vout}{Vout}$	Vout+1.0V Vin 6.0V, Iout=30mA		0.01	0.10	%/V	
Ripple rejection	Rr	Vin=Vout+1.0V, f=1.0KHz, Vrip=0.5Vp-p, Iout=30mA		75		dB	
Output voltage temperature coefficient	$\frac{Vout}{Ta} \cdot \frac{Vout}{Vout}$	Vin=Vout+1.0V, Vout 1.95V, Iout=30mA, -40 Ta +85		± 20		ppm/	
Output voltage temperature coefficient	$\frac{Vout}{Ta} \cdot \frac{Vout}{Vout}$	Vin=Vout+1.0V, Vout 1.9V, Iout=30mA, -40 Ta +85		± 100		ppm/	
Limit current	Ilimit	EN=Vin	300			mA	
Short circuit current	Ishort	Vin=Vout+1.0V, Vout=0V		40		mA	

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