

GENERAL DESCRIPTION

The RM4194 and RC4194 are dual polarity tracking regulators designed to provide balanced-or unbalanced positive and negative output voltages at currents to 200mA. A single external resistor adjustment can be used to change both outputs between the limits of $\pm 50mV$ and $\pm 42V$.

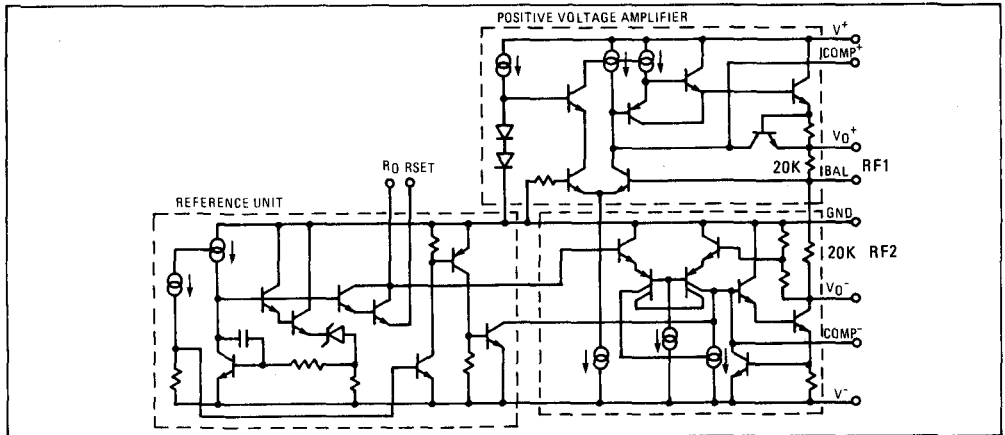
These devices are designed for local "on-card" regulation, eliminating distribution problems associated with single-point regulation. To simplify application the regulators require a minimum number of external parts.

The device is available in two package types to accommodate various power requirements. The TK (TO-66) power package can dissipate up to 3W at $T_A = 25^\circ C$. The DC 14-pin dual in-line will dissipate up to 1W.

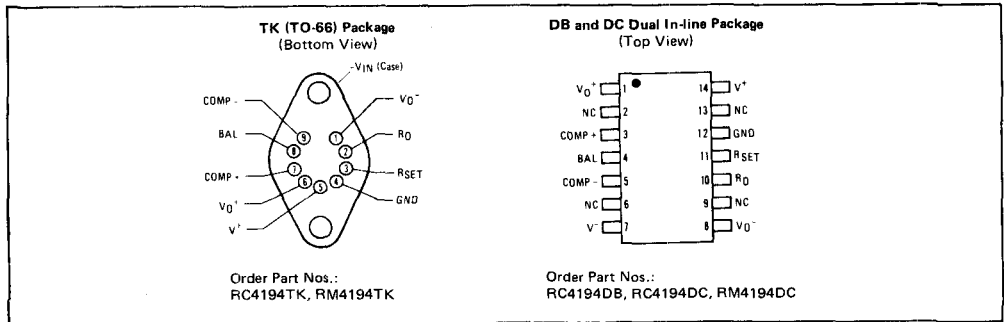
DESIGN FEATURES

- Simultaneously Adjustable Outputs With One Resistor to $\pm 42V$
- Load Current $\pm 200mA$ with 0.2% Load Regulation
- Internal Thermal Shutdown at $T_j = 175^\circ C$
- External Balance for $\pm V_0$ Unbalancing
- 3W Power Dissipation

SCHEMATIC DIAGRAM



CONNECTION INFORMATION



ABSOLUTE MAXIMUM RATINGS

Input Voltage $\pm V$ to Ground	RM4194: $\pm 45V$ RC4194: $\pm 35V$	Load Current DC Package	150mA
Input-Output Voltage Differential	RM4194: $\pm 45V$ RC4194: $\pm 35V$	TK Package	250mA
Power Dissipation at $T_A = 25^\circ C$		DB Package	100mA
DC Package	1W	Operation Junction Temperature Range	
TK Package	3.0W	RM4194	$-55^\circ C$ to $+150^\circ C$
DB Package	625mW	RC4194	$0^\circ C$ to $+125^\circ C$
		Storage Temperature Range	$-65^\circ C$ to $+150^\circ C$
		Lead Temperature (Soldering, 10s)	$+300^\circ C$

ELECTRICAL CHARACTERISTICS ($\pm 5 \leq V_{OUT} \leq V_{MAX}$; RM4194: $-55^\circ C \leq T_j \leq +125^\circ C$; RC4194: $0^\circ C \leq T_j \leq +70^\circ C$) (Note 2)

PARAMETER	CONDITIONS	RM4194			RC4194			UNITS
		MIN	TYP	MAX	MIN	TYP	MAX	
Line Regulation	$\Delta V_{IN} = 0.1V_{IN}$		0.04	0.1		0.04	0.1	% V_{OUT}
Load Regulation	4194TK: $I_L = 1$ to 200mA 4194DC: $I_L = 1$ to 100mA, $T_j = +25^\circ C$		0.001	0.002		0.002	0.004	% V°/mA
	RM4194 = $t_j = -55^\circ C - +125^\circ C$ RC4194 = $t_j = 0^\circ C - +70^\circ C$		0.002	0.004		0.002	0.004	% V°/mA
TC of Output Voltage			0.002	0.015		0.002	0.015	%/ $^\circ C$
TC of Output Voltage			0.002	0.015		0.003	0.015	%/ $^\circ C$
Stand-By Current Drain (Note 1)	$V_{IN} = V_{MAX}$, $V_O = 0V$		+0.3	+1.0		+0.3	+1.5	mA
	$V_{IN} = V_{MAX}$, $V_O = 0V$		-1.2	-2.0		-1.2	-3.0	
Input Voltage Range		± 9.5		± 45	± 9.5		± 35	V
Output Voltage Scale Factor	$R_{set} = 71.5K$, $T_j = 25^\circ C$	2.42	2.5	2.58	2.38	2.5	2.62	$K\Omega/V$
Output Voltage Range	$R_{set} = 71.5K$	0.05		± 42	0.05		± 32	V
Output Voltage Tracking				1.0			2.0	%
Ripple Rejection	$f = 120Hz$, $T_j = 25^\circ C$		70			70		dB
Input-Output Voltage Differential	$I_L = 50mA$ $T_A = +25^\circ C$	3.0			3.0			V
Output Short Circuit Current	$V_{IN} = \pm 30V$ Max.		300			300		mA
Output Noise Voltage	$C_L = 4.7\mu F$, $V_O = \pm 15V$ $f = 10Hz$ to 100KHz		250			250		μV RMS
Internal Thermal Shutdown			175			175		$^\circ C$

THERMAL CHARACTERISTICS

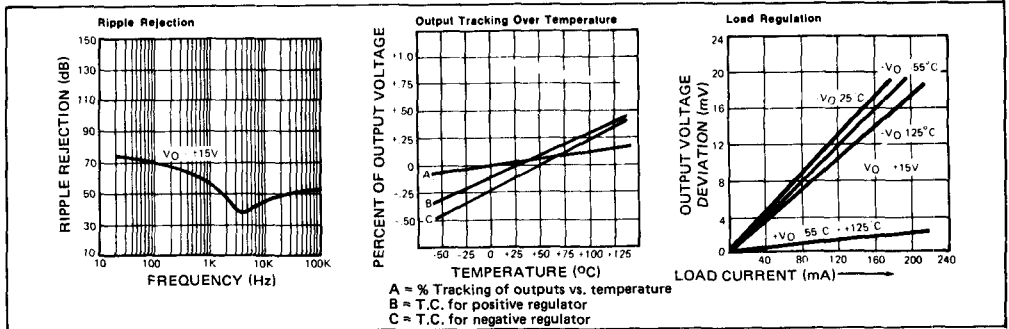
PARAMETER	CONDITIONS	PACKAGE		
		DB	DC	TK (TO-66)
Power Dissipation	$T_A = 25^\circ C$	625mW	1W	3W
	$T_C = 25^\circ C$	1.25W	2.2W	17.5W
Thermal Resistance	Junction to Ambient, θ_{J-A}	160 $^\circ C/W$	128 $^\circ C/W$	41.6 $^\circ C/W$
	Junction to Case, θ_{J-C}	80 $^\circ C/W$	55 $^\circ C/W$	7.15 $^\circ C/W$

NOTE:

1. $\pm I_{Quiescent}$ will increase by 50 $\mu A/V_{OUT}$ on positive side and 100 $\mu A/V_{OUT}$ on negative side.
2. The specifications above apply for the given junction temperatures since pulse test conditions are used.



TYPICAL ELECTRICAL TEST DATA



TYPICAL APPLICATIONS

