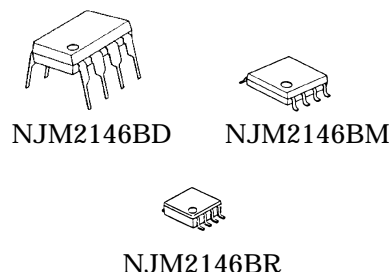


VOLTAGE AND CURRENT CONTROL IC

■ GENERAL DESCRIPTION

The NJM2146B is a voltage and current control IC which contains single-supply low offset voltage OP-AMP(2mV max.), low operating OP-AMP, and precision voltage reference. It is suitable for battery charger, second controller of switching regulator systems, and other battery systems.

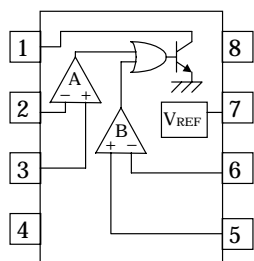
■ PACKAGE OUTLINE



■ FEATURES

- Operating Voltage (2.5V ~ 18V)
- Internal Precision Voltage Reference (1.5V±1%)
- PC Terminal Current (60mA max.)
- Operating Current (3mA max.)
- Bipolar Technology
- Package Outline DIP8, DMP8, VSP8

■ PIN CONFIGURATION



PIN FUNCTION

1. PC
2. A -INPUT
3. A +INPUT
4. GND
5. B +INPUT
6. B -INPUT
7. V_{REF}
8. V⁺

■ ABSOLUTE MAXIMUM RATINGS

(Ta=25°C)

PARAMETER	SYMBOL	RATINGS	UNIT
Supply Voltage	V ⁺	20	V
Differential Input Voltage	V _{ID}	(A _{ch}) 20 (B _{ch}) ±4	V
Power Dissipation	P _D	(DIP8) 500 (DMP8) 300 (VSP8) 320	mW
PC Terminal Current	I _{pc}	60	mA
Operating Temperature Range	T _{opr}	-40 ~ 85	°C
Storage Temperature Range	T _{stg}	-50 ~ 150	°C

(note) When the supply voltage is less than 20V, the absolute maximum input voltage is equal to the supply voltage

■ RECOMMENDED OPERATING CONDITIONS

(Ta=25°C)

PARAMETER	SYMBOL	RATINGS	UNIT
Operating Voltage	V _{opr}	2.5 ~ 18	V

■ ELECTRICAL CHARACTERISTICS

($V^+=5V$, $T_a=25^\circ C$)

PARAMETER	SYMBOL	CONDITIONS	MIN.	TYP.	MAX.	UNIT
Operating Current	I_{CC}	$I_{PC}=\text{off}$	–	1	3	mA
Leakage Current	I_{PCLEAK}	$V^+=V_{PC}=20V$	–	–	100	μA
Saturation Voltage	$V_{PC(SAT)}$	$I_{PC}=50mA$	–	0.5	0.7	V
Reference Voltage	V_{REF}	$I_{REF}=0mA$	1485	1500	1515	mV
Reference Voltage Load Regulation	$\Delta V_{REF}/\Delta I_{REF}$	$I_{REF}=0 \sim 5mA$	–	–	30	mV

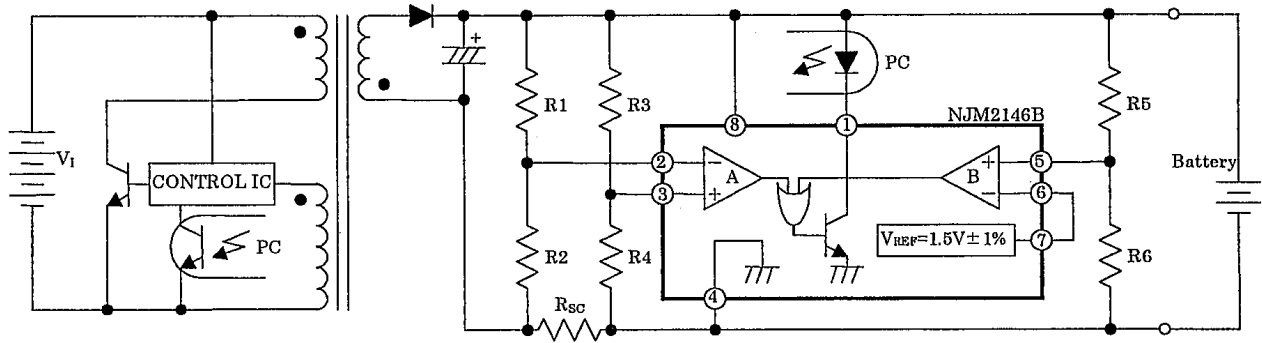
[Ach]

PARAMETER	SYMBOL	CONDITIONS	MIN.	TYP.	MAX.	UNIT
Input Offset Voltage	V_{IO}		–	0.5	2	mV
Input Offset Current	I_{IO}		–	5	50	nA
Input Bias Current	I_B		–	80	250	nA
Large Signal Voltage Gain	A_V		–	80	–	dB
Input Common Mode Voltage Range	V_{ICM}		0 to 3	–	–	V
Common Mode Rejection Ratio	CMR		–	90	–	dB
Supply Voltage Rejection Ratio	SVR		–	80	–	dB
Slew Rate	SR		–	0.8	–	V/ μs
Gain Bandwidth Product	GB	$f=10kHz$	–	2	–	MHz

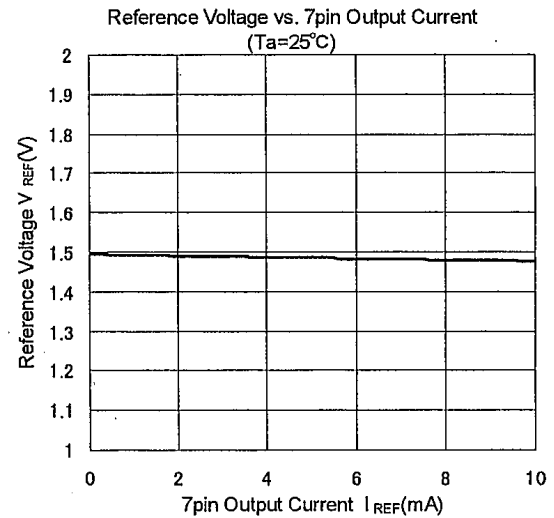
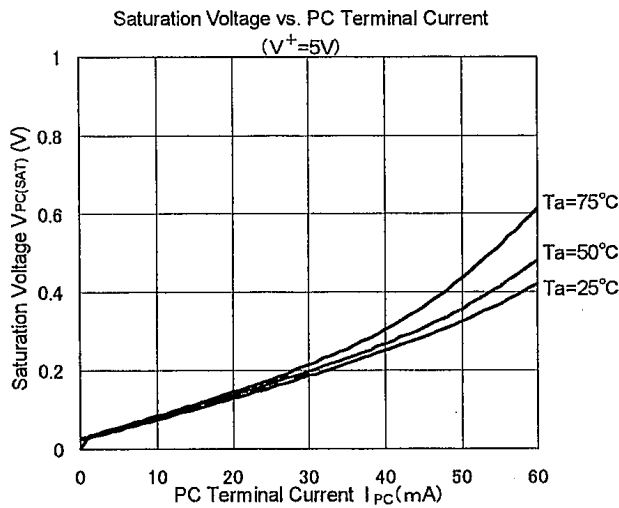
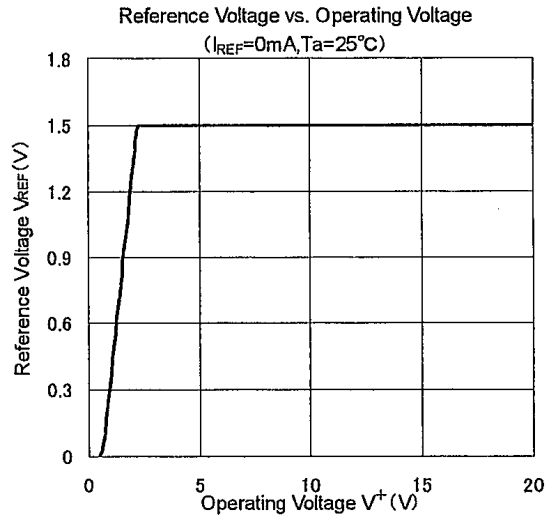
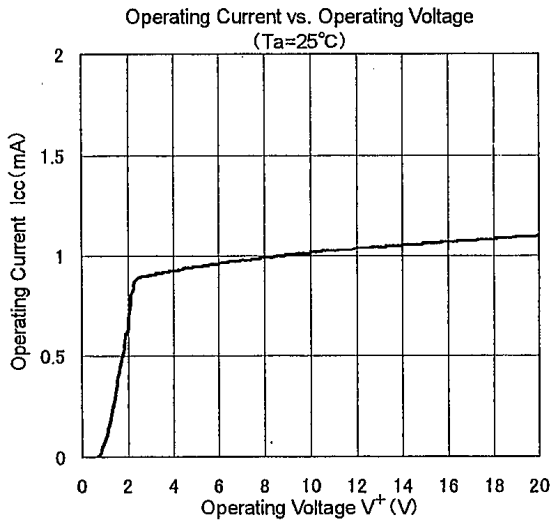
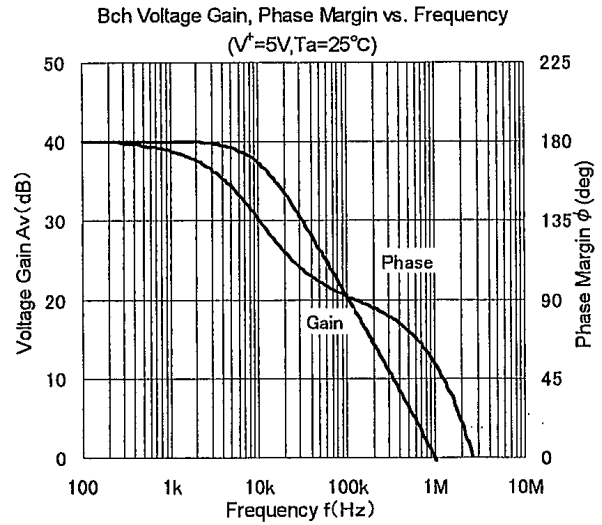
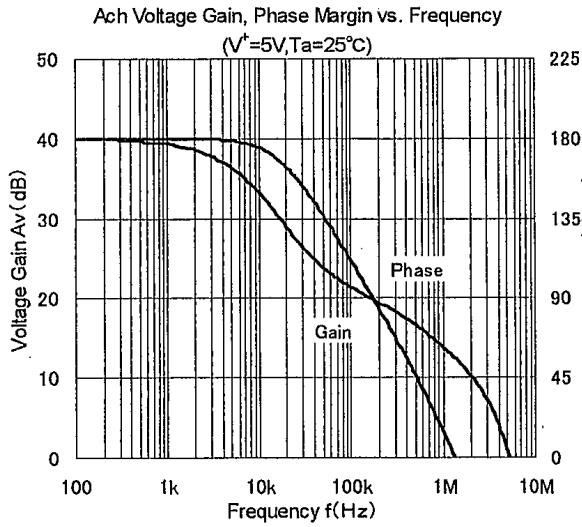
[Bch]

PARAMETER	SYMBOL	CONDITIONS	MIN.	TYP.	MAX.	UNIT
Input Offset Voltage	V_{IO}		–	1	6	mV
Input Offset Current	I_{IO}		–	10	50	nA
Input Bias Current	I_B		–	100	300	nA
Large Signal Voltage Gain	A_V		–	80	–	dB
Input Common Mode Voltage Range	V_{ICM}		1.0 to 4.4	–	–	V
Common Mode Rejection Ratio	CMR		–	90	–	dB
Supply Voltage Rejection Ratio	SVR		–	80	–	dB
Slew Rate	SR	$A_V=1$, $V_{IN}=2.5V \pm 1V$	–	0.5	–	V/ μs
Gain Bandwidth Product	GB	$f=10kHz$	–	1	–	MHz

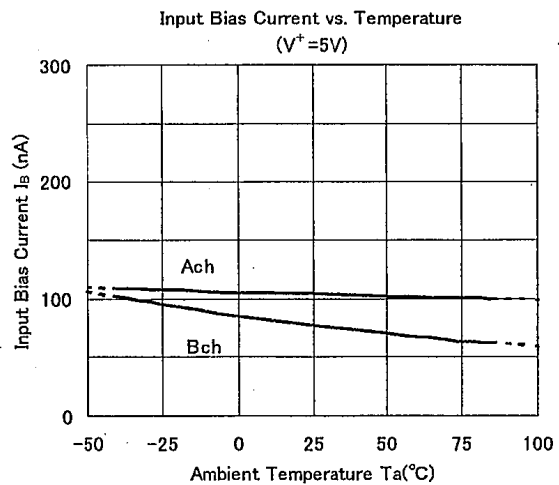
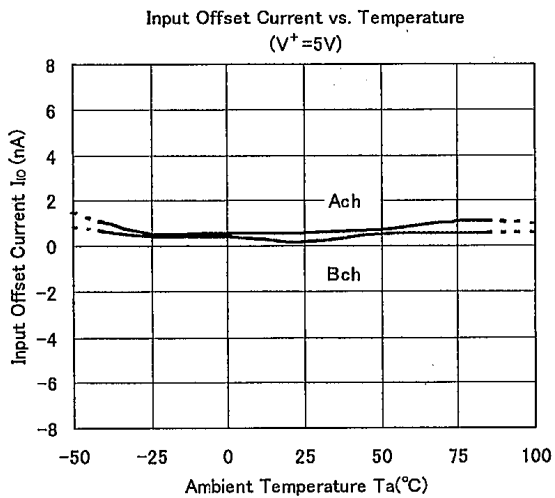
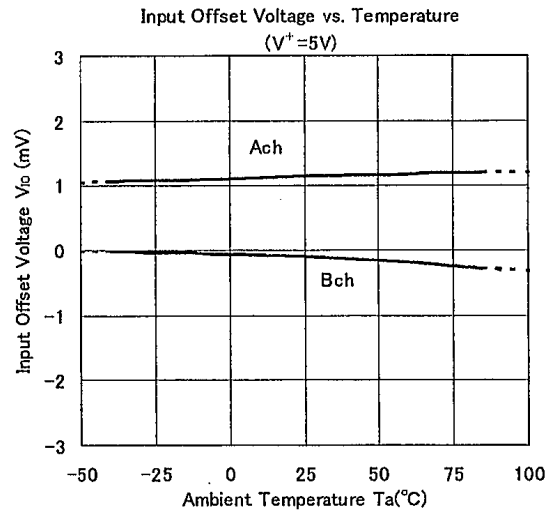
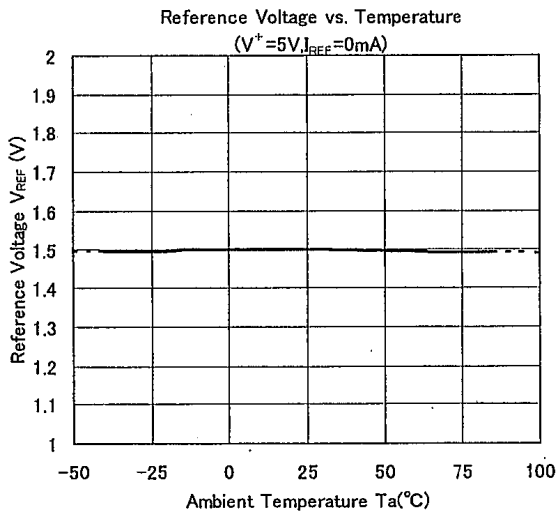
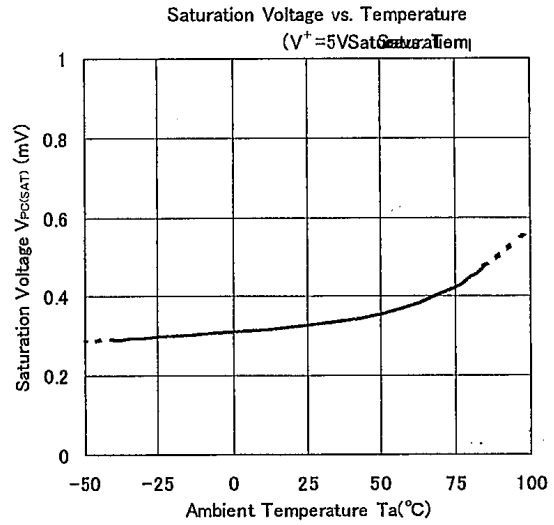
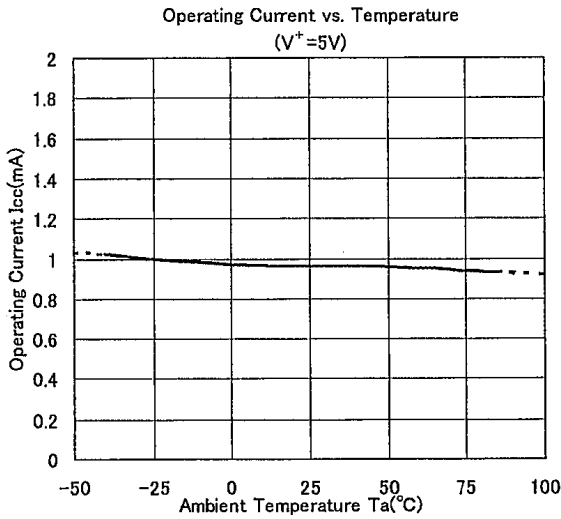
■ TYPICAL APPLICATION



TYPICAL CHARACTERISTICS



■ TYPICAL CHARACTERISTICS



6

MEMO

[CAUTION]
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