HIGH PRECISION DC/DC CONVERTOR CONTROL IC

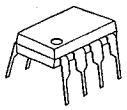
■ GENERAL DESCRIPTION

The NJM2360A is a control circuit containing the primary functions required for DC to DC CONVERTOR.

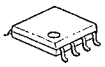
This device consist of high precision reference, comparator controlled duty cycle oscillator with an active current limit circuit, driver and high current output switch.

This IC was speciffically designed to be incorporated in step-up, step-down and inverting applications with a minimum number of external components. This IC is desiged to be ±5% output voltage by using precision 1% resistance on external detected resistance.

■ PACKAGE OUTLINE



NJM2360AD

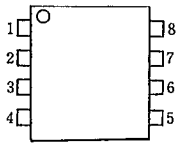


NJM2360AM

■ FEATURES

- Operating Voltage (2.5V~40V)
- Precision ±2% Reference
- Low Standby Current
- Output Voltage V_{OR} 1.25~40V
- Oscillator Frequency f_{OSC} 100Hz~100kHz
- Output Switch Current to 1.5A
- Package Outline DIP8, DMP8
- Bipolar Technology

■ PIN COFIGURATION

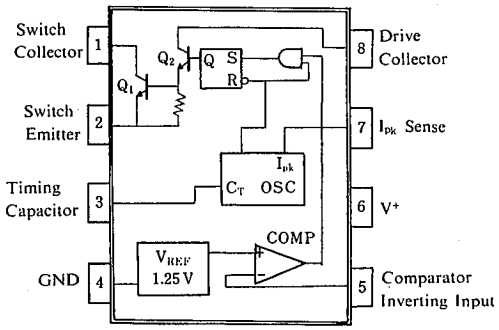


NJM2360AD
NJM2360AM

PIN FUNCTION

1. C_S
2. E_S
3. C_T
4. GND
5. INV_{IN}
6. V^+
7. S_I
8. C_D

■ BLOCK DIAGRAM



■ ABSOLUTE MAXIMUM RATINGS

(Ta=25℃)

PARAMETER	SYMBOL	RATINGS	UNIT
Supply Voltage	V^+	40	V
Comparator Input Voltage Range	V_{IR}	−0.3~40	V
Power Dissipation	P_D	(DIP8) 875 (DMP8) 750(note 1)	mW mW
Switch Current	I_{SW}	1.5	A
Operating Temperature Range	T_{opr}	−40~+85	℃
Storage Temperature Range	T_{stg}	−40~+150	℃

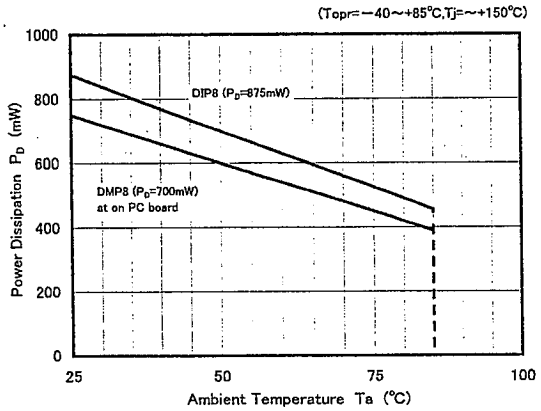
(note 1) At on PC board

■ ELECTRICAL CHARACTERISTICS

- DC Characteristics (V^+=5V, Ta=25℃)

PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Operating Current	I_{CC}	5V≦V^+≦40V, C_T=0.001μF S_I=V^+, INV_{IN}>V_{th}, E_S=GND	—	2.4	3.5	mA
Oscillator						
Charge Current	I_{chg}	5V≦V^+≦40V	20	35	50	μA
Discharge Current	I_{dischg}	5V≦V^+≦40V	150	200	250	μA
Voltage Swing	V_{OSC}		—	0.5	—	V_{P-P}
Discharge to Charge Current Ratio	I_{dischg}/I_{chg}	S_I=V^+	—	6	—	—
Peak Current Sense Voltage	$V_{IPK(sense)}$	I_{chg}=I_{dischg}	250	300	350	mV
Output Switch (Note 2)						
Saturation Voltage 1	$V_{CE(sat)}$1	Darlington Connection (C_S=C_D) I_{SW}=1.0A	—	1.0	1.3	V
Saturation Voltage 2	$V_{CE(sat)}$ 2	I_{SW}=1.0A, $I_{C(driver)}$=50mA (Forced β≒20)	—	0.5	0.7	V
DC Current Gain	h_{FE}	I_{SW}=1.0A, V_{CE}=5.0V	35	120	—	—
Collector Off−State Current	$I_{C(off)}$	V_{CE}=40V	—	10	—	nA
Comparator						
Threshold Voltage	V_{th}		1.225	1.250	1.275	V
Input Bias Current	I_{IB}	V_{IN}=OV	—	40	400	nA

Note 2 : Output switch tests are performed under pulsed conditions to minimize power dissipation.



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