



M4565

LINEAR INTEGRATED CIRCUIT

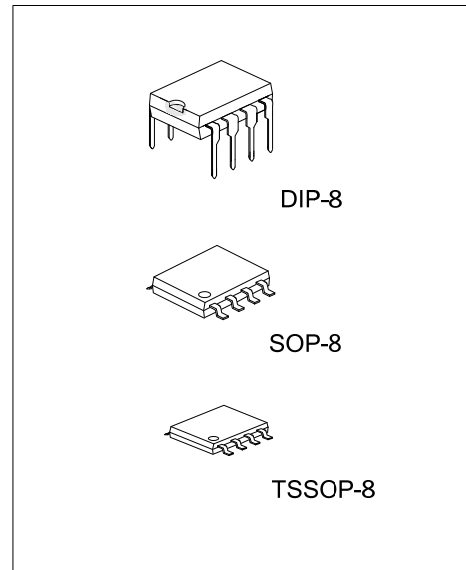
DUAL OPERATIONAL AMPLIFIER

■ DESCRIPTION

The UTC **M4565** integrated circuit is a high-gain, wide-bandwidth, dual low noise operational amplifier capable of driving 20V peak-to-peak into 400Ω load.

■ FEATURES

- * Operating Voltage: ±4V~±18V
- * Wide Gain Bandwidth Product: 4MHz (typ.)
- * Slew Rate: 4V/μs (typ.)



■ ORDERING INFORMATION

Ordering Number		Package	Packing
Lead Free	Halogen Free		
M4565L-D08-T	M4565G-D08-T	DIP-8	Tube
-	M4565G-S08-R	SOP-8	Tape Reel
-	M4565G-P08-R	TSSOP-8	Tape Reel

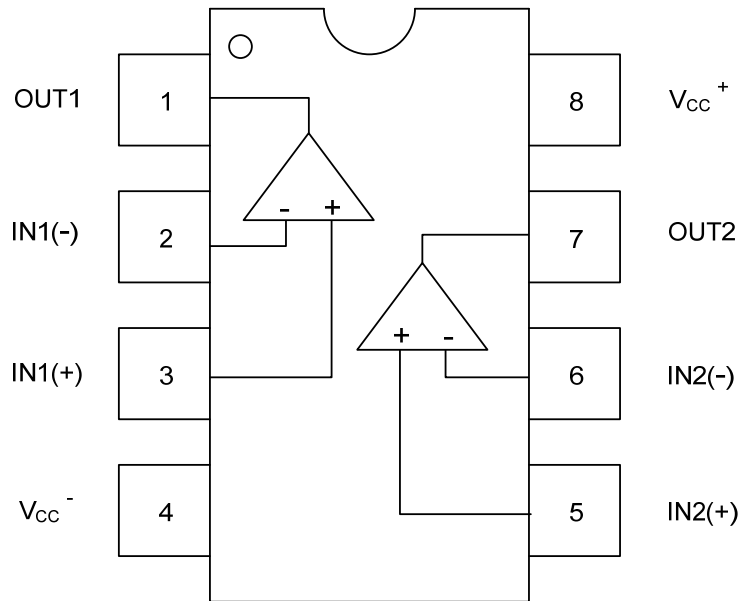
<p>M4565L-D08-T</p> <p>(1) Packing Type (2) Package Type (3) Green Package</p>	<p>(1) T: Tube, R: Tape Reel (2) D08: DIP-8, S08: SOP-8, P08: TSSOP-8 (3) L: Lead Free, G: Halogen Free and Lead Free</p>
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■ MARKING

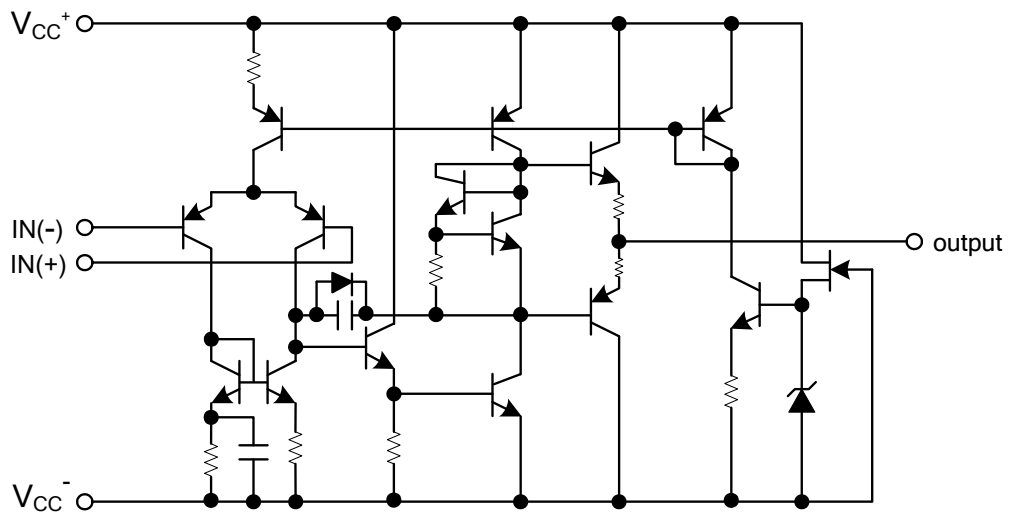
DIP-8	SOP-8	TSSOP-8
<p>UTC □□□□ M4565□□ □□</p> <p>→ Date Code → L: Lead Free → G: Halogen Free → Lot Code</p>	<p>UTC □□□□ M4565G □□</p> <p>→ Date Code → Lot Code</p>	<p>UTC □□□□ M4565G □□</p> <p>→ Date Code → Lot Code</p>



■ PIN CONFIGURATION



■ EQUIVALENT CIRCUIT



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 www.flying1688.com

■ ABSOLUTE MAXIMUM RATINGS (T_A=25°C)

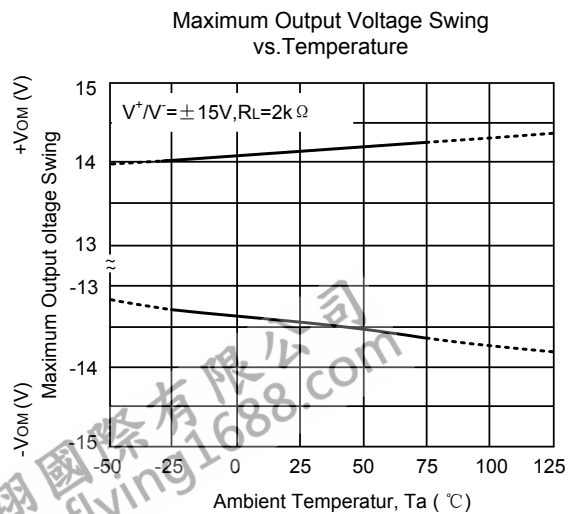
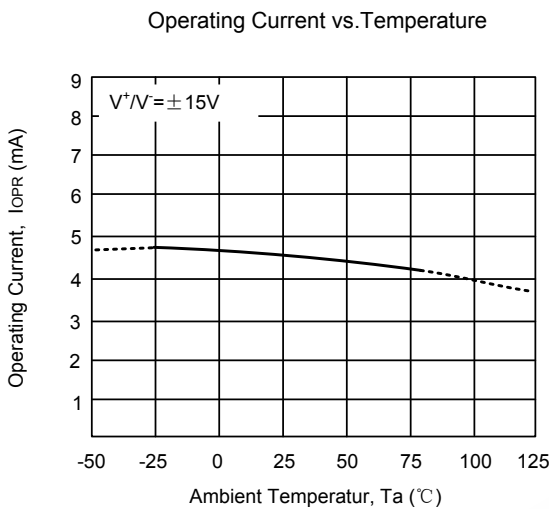
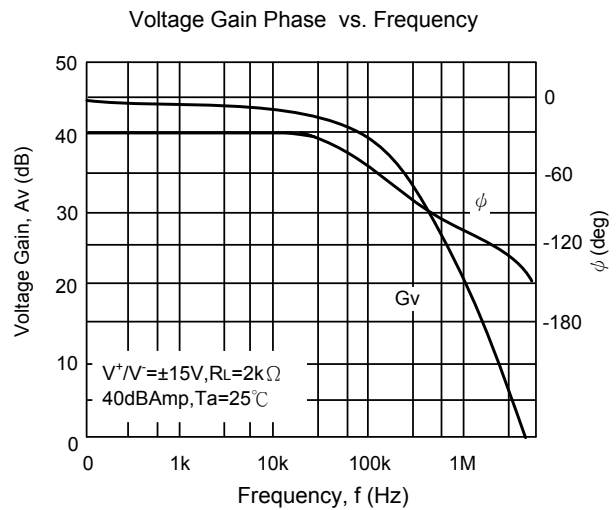
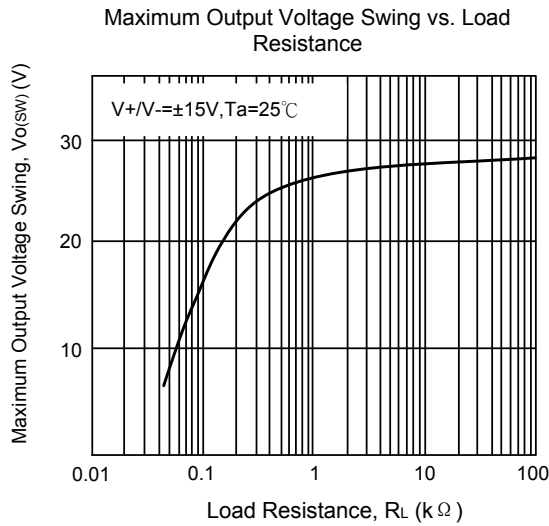
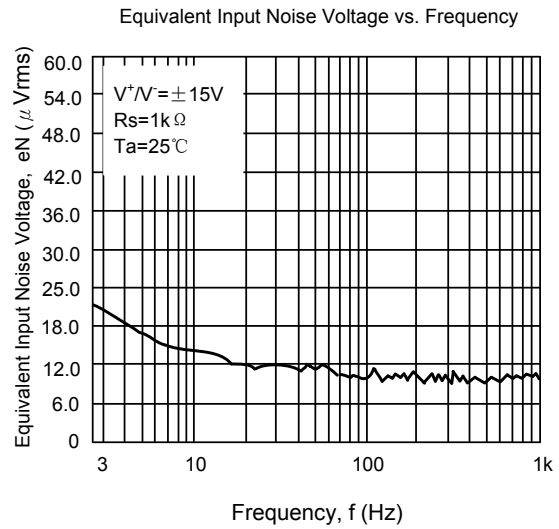
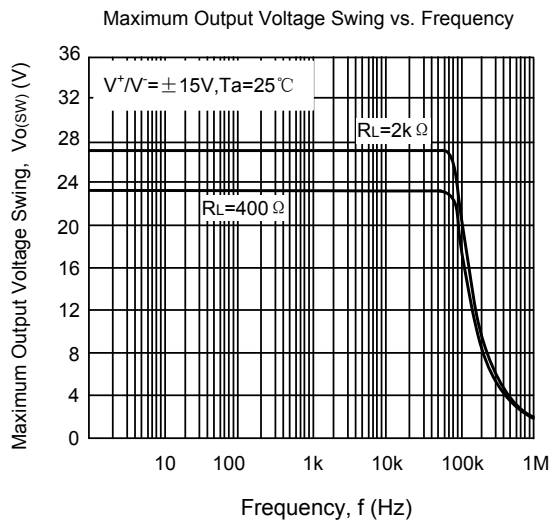
PARAMETER		SYMBOL	RATINGS	UNIT
Supply Voltage		V ^{+/V}	±18	V
Differential Input Voltage		V _{ID}	±30	V
Input Voltage		V _{IC}	±15 (Note)	V
Power Dissipation	DIP-8	P _D	500	mW
	SOP-8		300	mW
	TSSOP-8		250	mW
Operating Temperature Range		T _{OPR}	-20 ~ +75	°C
Storage Temperature Range		T _{STG}	-40 ~ +125	°C

Note: For supply voltage less than ±15V, the absolute maximum input voltage is equal to the supply voltage.

■ ELECTRICAL CHARACTERISTICS (T_A=25°C, V^{+/V-}=±15V)

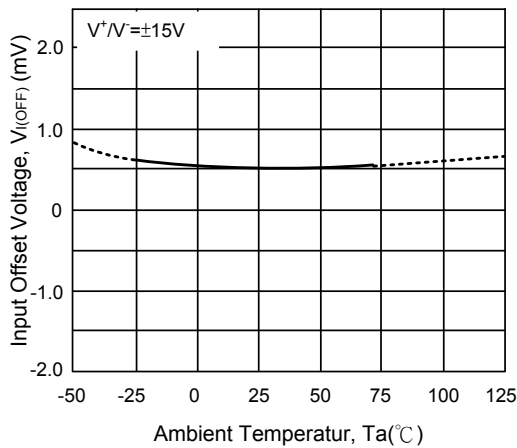
PARAMETER	SYMBOL	TEST CONDITION	MIN	TYP	MAX	UNIT
Input Offset Voltage	V _{I(OFF)}	R _S ≤10kΩ		0.5	3.0	mV
Input Offset Current	I _{I(OFF)}			2	50	nA
Input Bias Current	I _{I(BIAS)}			50	200	nA
Input Resistance	R _{IN}		0.3	5		MΩ
Large Signal Voltage Gain	G _V	R _L ≥2kΩ, V _{OUT} =±10V	86	100		dB
Maximum Output Voltage Swing 1	V _{O(SW1)}	R _L ≥2kΩ	±12	±14		V
Maximum Output Voltage Swing 2	V _{O(SW2)}	I _{OUT} =25mA	±10	±11.5		V
Input Common Mode Voltage Range	V _{I(CM)}		±12	±14		V
Common Mode Rejection Ratio	CMRR	R _S ≤10kΩ	70	90		dB
Supply Voltage Rejection Ratio	SVR	R _S ≤10kΩ	76.5	90		dB
Operating Current	I _{CC}			4.5	7	mA
Slew Rate	SR			4		V/μs
Gain Bandwidth Product	GB _W			10		MHz
Equivalent Input Noise Voltage	e _N	RIAA, R _S =2.2kΩ, 30kHz LPF		1.2		μVrms

TYPICAL CHARACTERISTICS

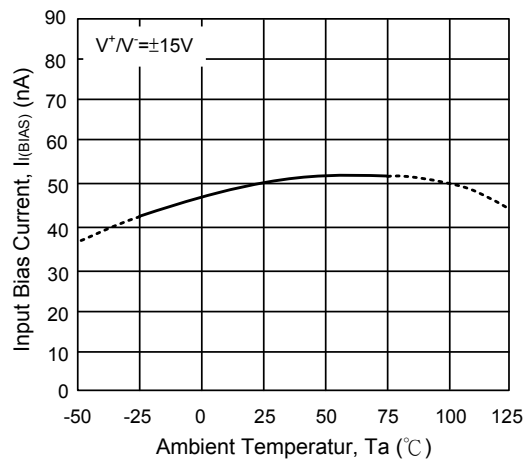


■ TYPICAL CHARACTERISTICS(Cont.)

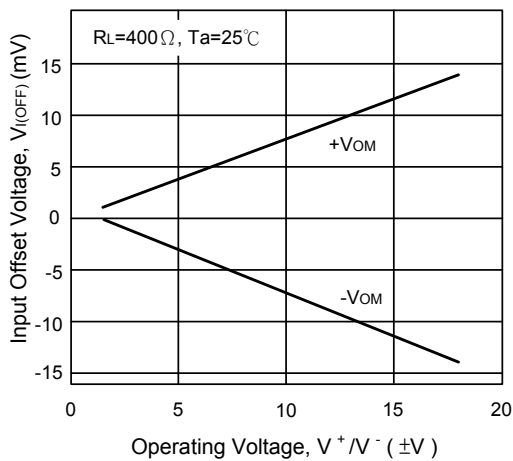
Input Offset Voltage vs. Temperature



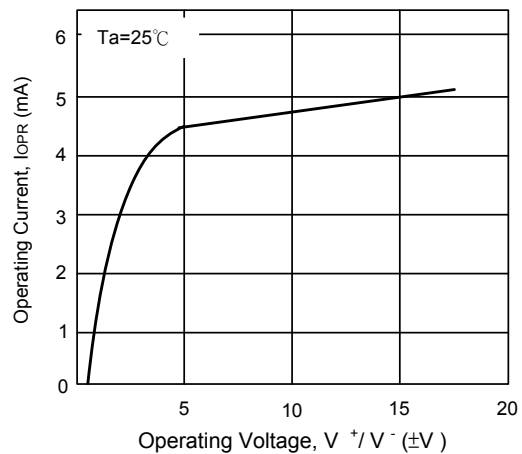
Input Bias Current vs. Temperature



Maximum Output Voltage Swing vs. Operating Voltage



Operating Current vs. Operating Voltage



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