

LM358-E8

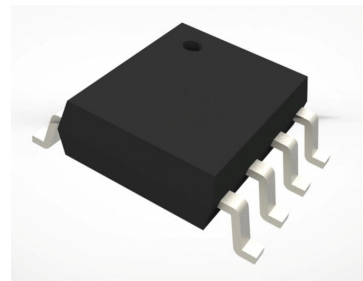
DUAL OPERATIONAL AMPLIFIERS

DESCRIPTION

The LM358 consists of dual independent, high gain, internally frequency compensated operational amplifiers which were designed specifically to operate from a single power supply over a wide voltage range.

Operation from split power supplies is also possible so long as the difference between the two supplies 3 V to 26 V.

Application areas include transducer amplifiers, DC gain blocks and all the conventional OP amp circuits which now can be easily implemented in single power supply systems.

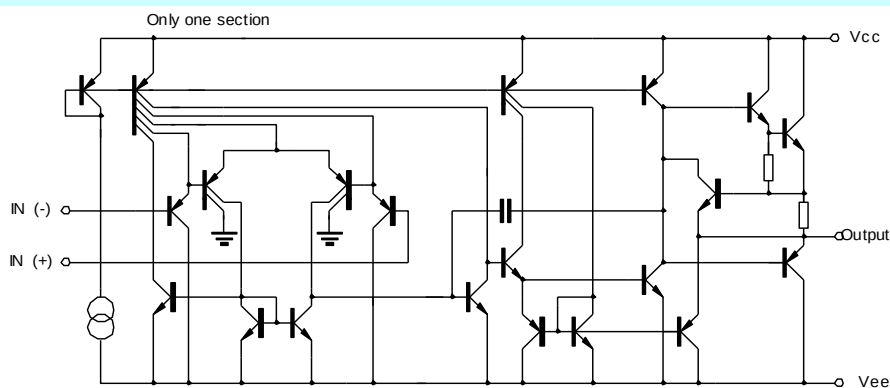


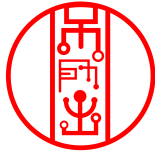
ESOP-8

FEATURES

- * Internally frequency compensated for unity gain
- * Large DC voltage gain :100dB
- * Wide operating supply range($V_{cc}=3V\sim 26V$ or $\pm 1.5V\sim \pm 13V$)
- * Input common-mode voltage includes ground
- * Large output voltage swing: From 0V to $V_{cc}-1.5V$
- * Power drain suitable for battery operation

BLOCK DIAGRAM





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ABSOLUTE MAXIMUM RATINGS (Ta=25°C)

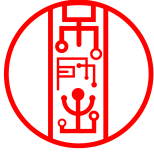
Characteristic	Symbol	Value	Unit
Supply Voltage	Vcc	±15or30	V
Differential input voltage	V _{i(diff)}	26	V
Input Voltage	V _i	-0.3~26	V
Operating Temperature	T _{opr}	-20 to +85	°C
Storage Temperature	T _{stg}	-65 to 150	°C

ELECTRICAL CHARACTERISTICS (Ta=25°C)

(Vcc=5.0V, All voltage referenced to GND unless otherwise specified)

Characteristic	Symbol	Test Condition	Min	Typ.	Max	Unit
Input offset voltage	V _{io}	V _{CM} =0 to Vcc-1.5 V _{o(p)} =1.4V, R _s =0		2	7.0	mV
Input offset current	I _{io}			5	50	nA
Input bias current	I _b			45	250	nA
Input common-mode voltage range	V _{icm}	Vcc=25V	0		Vcc-1.5	V
Supply current	I _{cc}	R _L =∞, Vcc=25V		0.8	2.0	mA
		Vcc=5V		0.5	1.2	mA
Large signal voltage gain	G _v	Vcc=15V, R _L =2kΩ V _{o(p)} =1V to 11V	25	100		V/mV
Output voltage swing	V _(OH)	Vcc=25V, R _L =2kΩ	21			V
		Vcc=25V, R _L =10kΩ	22	23		V
	V _(OL)	Vcc=5V, R _L =10kΩ		5	20	mV
Common-mode rejection ratio	CMRR		65	75		dB
Power supply rejection ratio	PSRR		65	100		dB
Channel separation	CS	f=1kHz to 20kHz		120		dB
Output short circuit to GND	I _{sc}			40	60	mA
Output current	I _{source}	V _{i(+)} =1V, V _{i(-)} =0V Vcc=15V, V _{o(p)} =2V	20	40		mA
	I _{sink}	V _{i(+)} =0V, V _{i(-)} =1V Vcc=15V, V _{o(p)} =2V	10	13		mA
		V _{i(+)} =0V, V _{i(-)} =1V Vcc=15V, V _{o(p)} =200mV	12	45		μA
Differential input voltage	V _{i(diff)}				Vcc	V
Slew rate	SR	V _{i(+)} =10V, V _{i(-)} =0V Vcc=±15V, R _L =2KΩ, C _L =100pF		1.0		V/μs





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Fig.7 Voltage follower pulse response

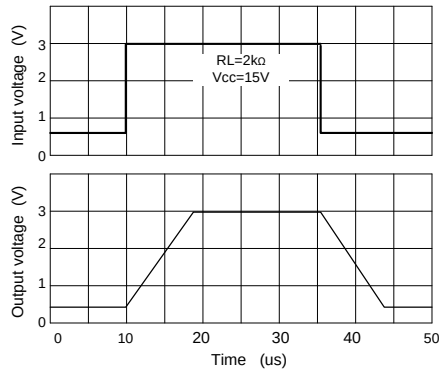


Fig.8 Voltage follower pulse response (small signal)

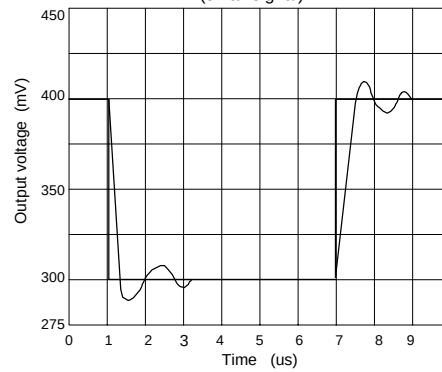


Fig.9 Large signal frequency response

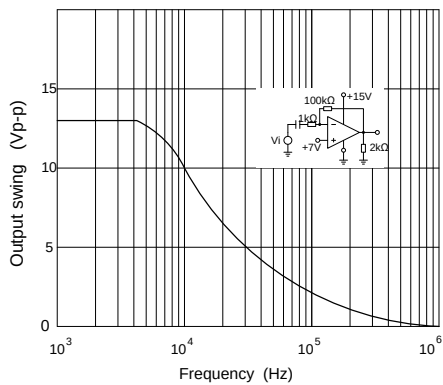


Fig.10 Output characteristics current sourcing

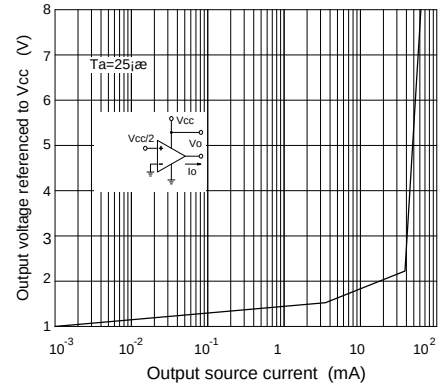


Fig.11 Output characteristics current sinking

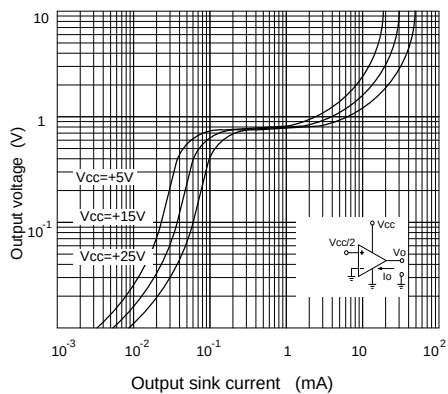
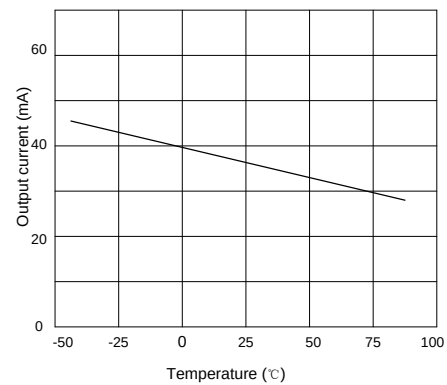
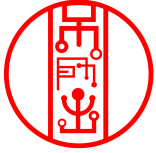


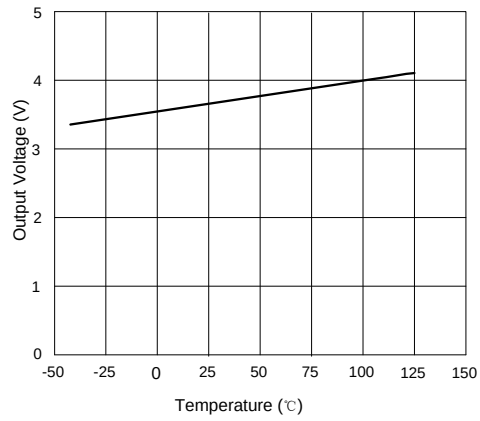
Fig.12 Current limiting

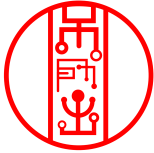




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Fig.13 Output Voltage&temperature





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标注	尺寸	最小 (mm)	最大 (mm)	标注	尺寸	最小 (mm)	最大 (mm)
A		4.80	5.00	C3		0.00	0.09
A1		0.356	0.456	C4		0.203	0.233
A2		1.27TYP		D		1.05TYP	
A3		0.345TYP		D1		0.40	0.80
B		3.80	4.00	R1		0.20TYP	
B1		5.80	6.20	R2		0.20TYP	
B2		5.00TYP		θ 1		17° TYP4	
C		1.30	1.60	θ 2		13° TYP4	
C1		0.55	0.65	θ 3		0° ~ 8°	
C2		0.55	0.65	θ 4		4° ~ 12°	

* ESOP Die pad exposur大小是根据引线框架设计。

