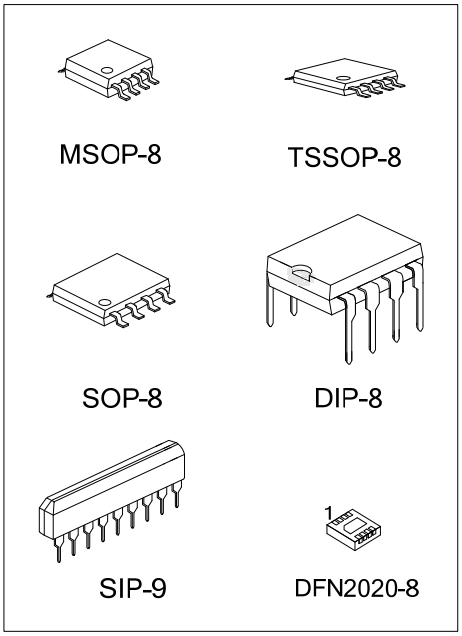
LM358

LINEAR INTEGRATED CIRCUIT

DUAL OPERATIONAL AMPLIFIER



■ DESCRIPTION

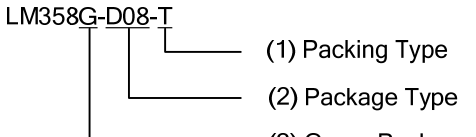
The UTC **LM358** consists of two independent high gain, internally frequency compensated operational amplifier. It can be operated from a single power supply and also split power supplies.

■ FEATURES

*Internally frequency compensated for unity gain.
*Wide power supply range 3V - 32V.
*Input common-mode voltage range include ground.
*Large DC voltage gain.

■ ORDERING INFORMATION

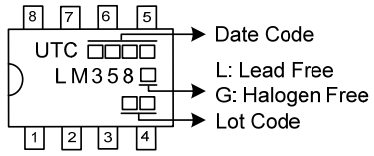
Ordering Number		Package	Packing
Lead Free	Halogen-Free		
LM358L-D08-T	LM358G-D08-T	DIP-8	Tube
LM358L-L09-T	LM358G-G09-T	SIP-9	Tube
LM358L-P08-R	LM358G-P08-R	TSSOP-8	Tape Reel
LM358L-S08-R	LM358G-S08-R	SOP-8	Tape Reel
LM358L-SM1-R	LM358G-SM1-R	MSOP-8	Tape Reel
LM358L-K08-2020-R	LM358G-K08-2020-R	DFN2020-8	Tape Reel



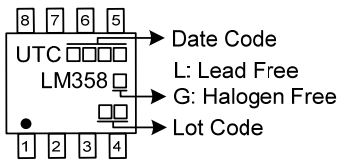
(1) T: Tube, R: Tape Reel
(2) D08: DIP-8, G09: SIP-9, S08: SOP-8, P08: TSSOP-8, SM1: MSOP-8, K08-2020: DFN2020-8
(3) G: Halogen Free and Lead Free, L: Lead Free

■ MARKING

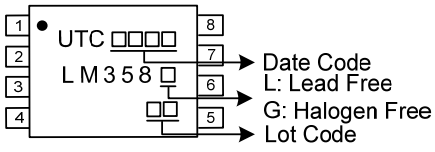
DIP-8



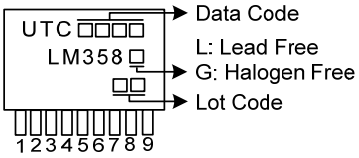
SOP-8/MSOP-8



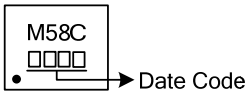
TSSOP-8



SIP-9

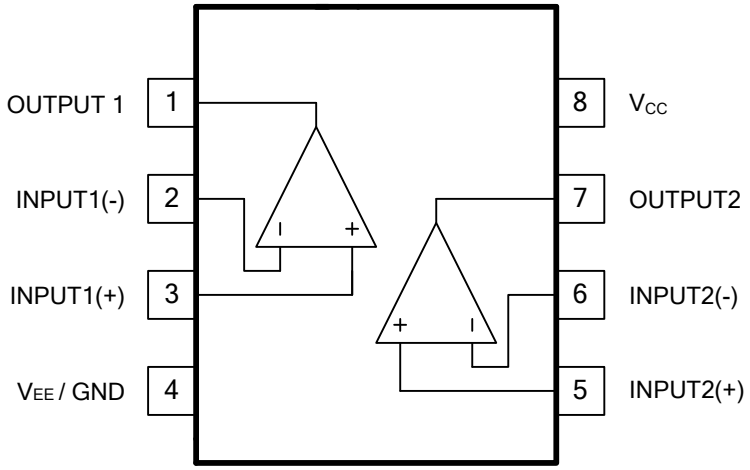


DFN2020-8

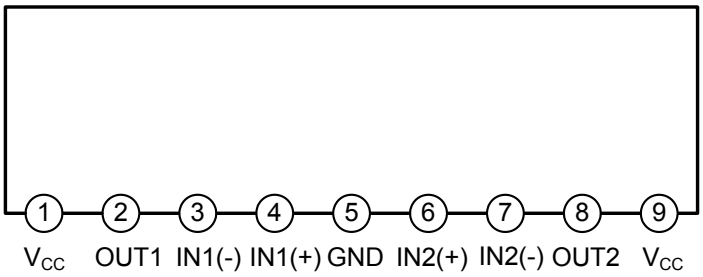


Copyright © 2017 Unisonic Technologies Co., Ltd

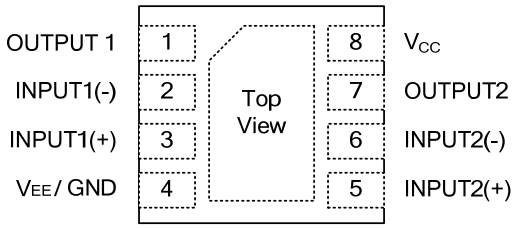
■ PIN DESCRIPTION



SOP-8/DIP-8/MSOP-8/TSSOP-8

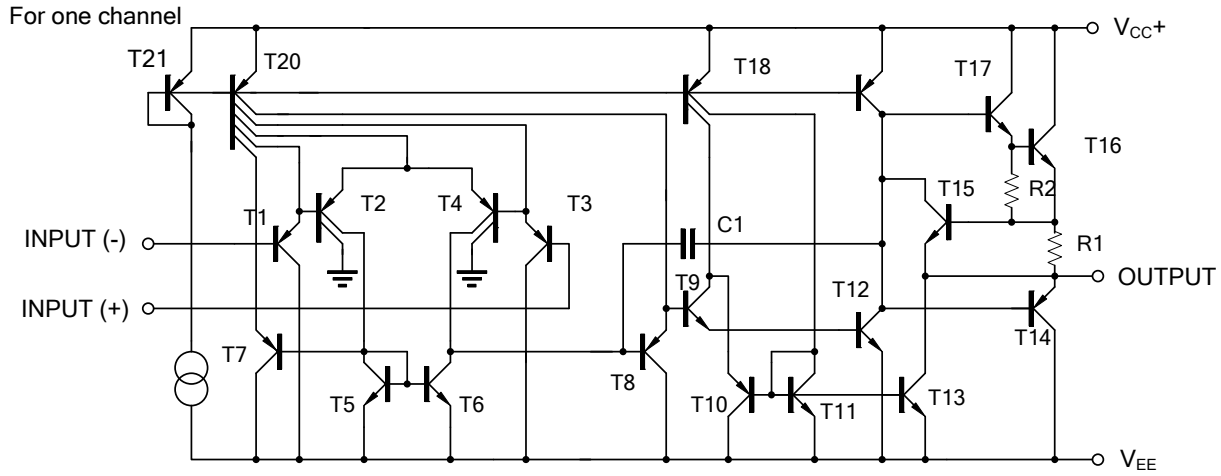


SIP-9



DFN2020-8

■ BLOCK DIAGRAM



■ ABSOLUTE MAXIMUM RATINGS

PARAMETER		SYMBOL	RATINGS	UNIT
Supply Voltage		V_{CC}	±16 or 32	V
Differential Input Voltage		$V_{I(DIFF)}$	±32	V
Input Voltage		V_I	-0.3 ~ +32	V
Output Short to Ground			Continuous	
Power Dissipation	SIP-9	P_D	750	mW
	DIP-8		625	
	SOP-8		440	
	TSSOP-8		360	
	MSOP-8		300	
	DFN2020-8		830	
Junction Temperature		T_J	+125	°C
Operating Temperature (Note 2)		T_{OPR}	-40 ~ +105	°C
Storage Temperature		T_{STG}	-65 ~ +150	°C

Notes: 1. Absolute maximum ratings are those values beyond which the device could be permanently damaged. Absolute maximum ratings are stress ratings only and functional device operation is not implied.
2. It is guarantee by design, not 100% be tested.

■ ELECTRICAL CHARACTERISTICS (V_{CC}=5.0V, V_{EE}=GND, T_A=25°C, unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Input Offset Voltage	$V_{I(OFF)}$	V_{CM}=0V toV_{CC}-1.5V $V_{O(P)}$=1.4V, R_S=0Ω		2.0	5.0	mV
Input Common Mode Voltage	$V_{I(CM)}$	V_{CC}=30V	0		V_{CC}-1.5	V
Differential Input Voltage	$V_{I(DIFF)}$				V_{CC}	V
Output Voltage Swing	V_{OH}	V_{CC}=30V, R_L=2KΩ	26			V
		V_{CC}=30V, R_L=10KΩ	27	28		V
	V_{OL}	V_{CC}=5V, R_L≧10KΩ		5	20	mV
Large Signal Voltage Gain	G_V	V_{CC}=15V, R_L≧2KΩ $V_{O(P)}$=1V ~ 11V	25	100		V/mV
Power Supply Current	I_{CC}	R_L=∝, V_{CC}=30V		0.8	2.0	mA
		R_L=∝, Full Temperature Range		0.5	1.2	mA
Input Offset Current	$I_{I(OFF)}$			5	50	nA
Input Bias Current	$I_{I(BIAS)}$			45	250	nA
Short Circuit Current to Ground	I_{SC}			40	70	mA
Output Current	I_{SOURCE}	V_I(+)=1V, V_I(-)=0V V_{CC}=15V, $V_{O(P)}$=2V	10	30		mA
	I_{SINK}	V_I(+)=0V, V_I(-)=1V V_{CC}=15V, $V_{O(P)}$=2V	10	15		mA
		V_I(+)=0V, V_I(-)=1V V_{CC}=15V, $V_{O(P)}$=200mV	12	100		μA
Common Mode Rejection Ratio	CMRR		65	80		dB
Power Supply Rejection Ratio	PSRR		65	100		dB
Channel Separation	CS	f=1KHZ ~ 20KHZ		120		dB

■ TYPICAL CHARACTERISTICS

Fig.1 Input Voltage Range

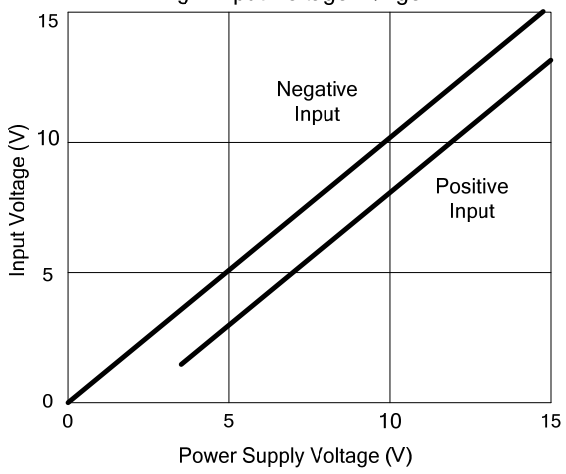


Fig.2 Input Current vs Temperature

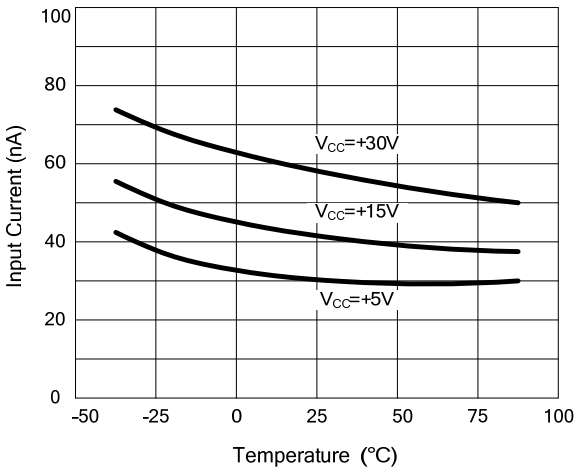


Fig.3 Supply Current vs Supply Voltage

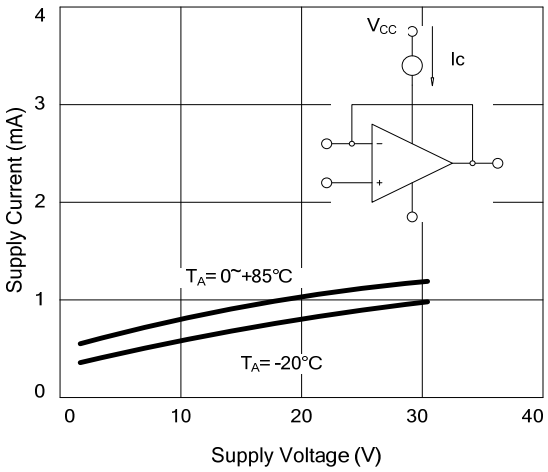


Fig. 4 Voltage Gain vs Supply Voltage

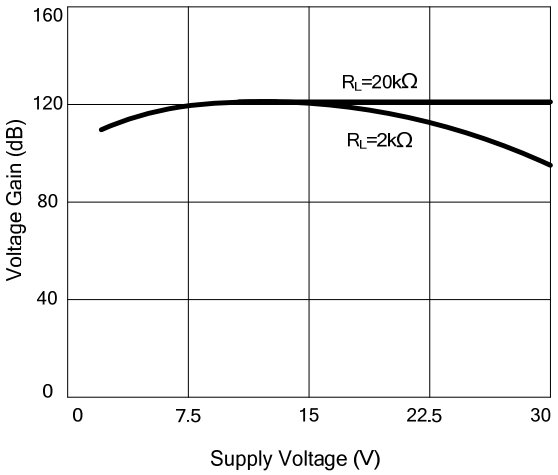


Fig. 5 Open Loop Gain vs Frequency

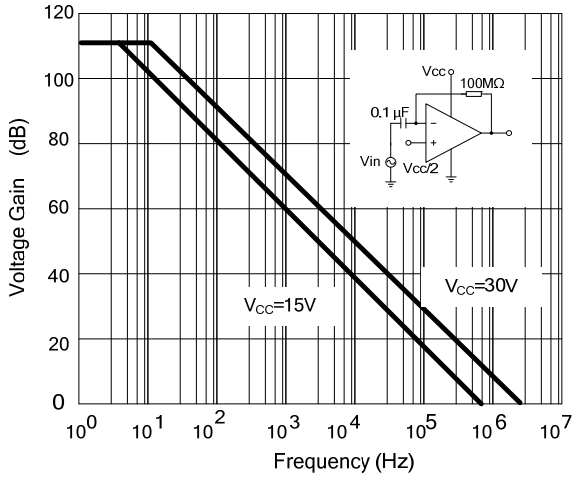
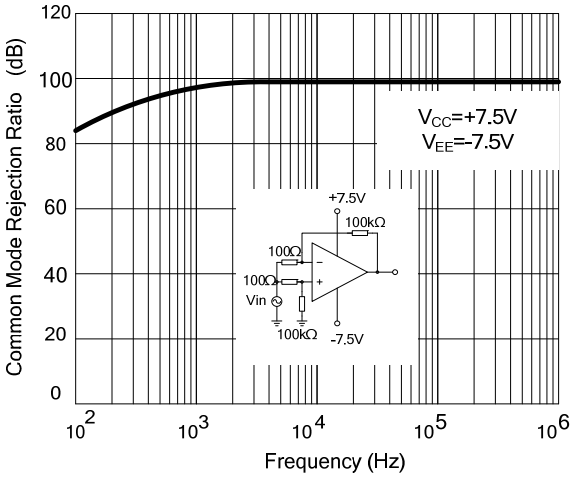


Fig. 6 Common Mode Rejection Ratio vs Frequency



■ TYPICAL CHARACTERISTICS(Cont.)

Fig. 7 Voltage Follower Pulse Response

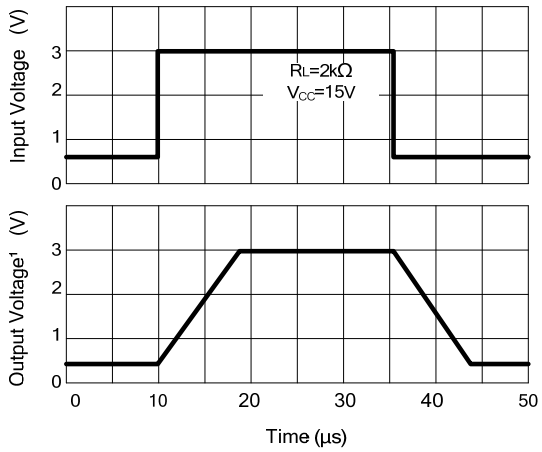


Fig. 8 Voltage Follower Response (Small Signal)

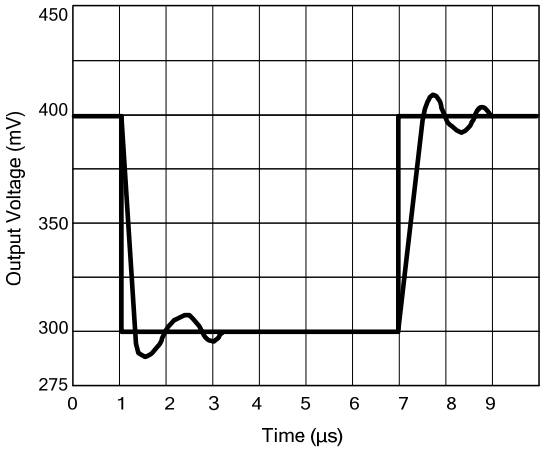


Fig. 9 Gain vs. Large Signal Frequency

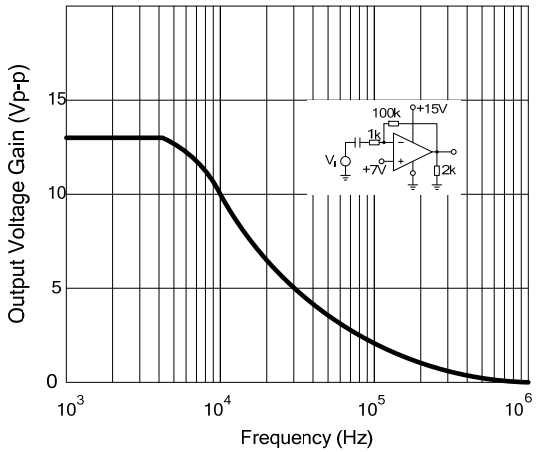


Fig. 10 Output Source Current vs Output Voltage

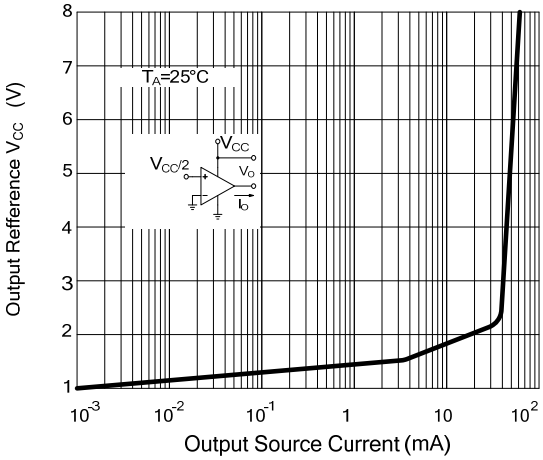


Fig. 11 Output Sink Current vs Output Voltage

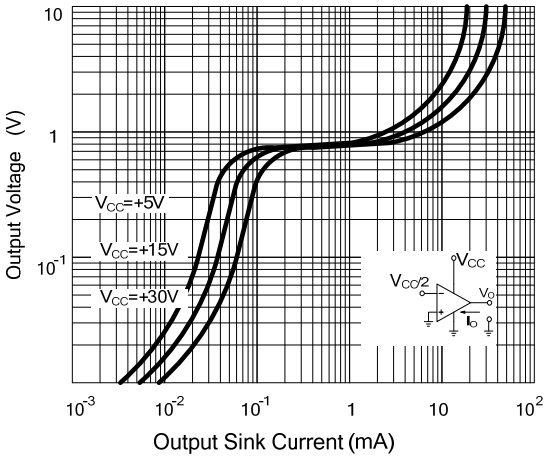
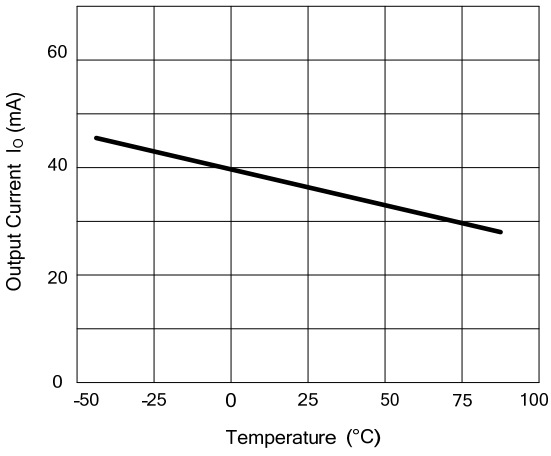


Fig.12 Current Limiting vs Temperature



UTC assumes no responsibility for equipment failures that result from using products at values that exceed, even momentarily, rated values (such as maximum ratings, operating condition ranges, or other parameters) listed in products specifications of any and all UTC products described or contained herein. UTC products are not designed for use in life support appliances, devices or systems where malfunction of these products can be reasonably expected to result in personal injury. Reproduction in whole or in part is prohibited without the prior written consent of the copyright owner. The information presented in this document does not form part of any quotation or contract, is believed to be accurate and reliable and may be changed without notice.

ENTEGRECİ

Bu belge www.entegreci.com üzerinden sunulmaktadır.

Elektronik komponent tedarikinde Entegreci

Entegreci, Eskişehir merkezli, Türkiye geneline satış yapan bir elektronik komponent mağazasıdır. Entegreler (IC), mikrodenetleyiciler, transistörler, diyotlar, pasif elemanlar, konnektörler, modüller ve geliştirme kartları tek adetten seri üretim adetlerine kadar satılır. Ürün sayfalarında güncel stok durumunu, fiyatı ve datasheet bağlantısını bulabilirsiniz.

Parça koduyla arama

Üretici parça numarasını yazın; stok ve fiyatı hemen görün.

www.entegreci.com

Ürün kategorileri

Entegreden kapasitöre tüm elektronik komponent kategorileri.

Kategorilere göz atın

Üreticiler

Aradığınız üreticinin ürünlerini tek sayfada inceleyin.

Üreticileri görün

Toplu alım ve teklif

Listede olmayan ya da yüksek adetli parçalar için teklif isteyin.

Teklif isteyin

www.entegreci.com | **destek@entegreci.com** | **0850 305 90 34**

Entegreci is an online electronic components store based in Türkiye. Search by manufacturer part number to see stock, prices and datasheets for integrated circuits, microcontrollers, transistors, passive components and connectors, or request a quote for parts that are not listed.

Bu sayfa Entegreci tarafından eklenmiştir. Belgenin önceki sayfaları asıl yayıncısına aittir ve içeriği değiştirilmemiştir; en güncel sürüm için belgenin yayıncısına başvurun.