

**DUAL OPERATIONAL AMPLIFIERS****AZ4558****General Description**

The AZ4558 consists of two high performance operational amplifiers. The IC features high gain, high input resistance, excellent channel separation, wide range of operating voltage and internal frequency compensation. It can work with $\pm 18V$ maximum power supply voltage.

The AZ4558 is specifically suitable for applications in differential-in, differential-out as well as in potential-metric amplifiers and where gain and phase matched channels are mandatory.

The AZ4558 is available in DIP-8 and SOIC-8 package.

Features

- Internal Frequency Compensation
- Large DC Voltage Gain with 100 dB Typical
- High Input Resistance with $5M\Omega$ Typical
- Maximum Power Supply Voltages: $\pm 18V$
- Compatible with NJM 4558
- Low Input Noise Voltage with $10nV/\sqrt{Hz}$

Applications

- Audio AC-3 Decoder System
- Audio Amplifier

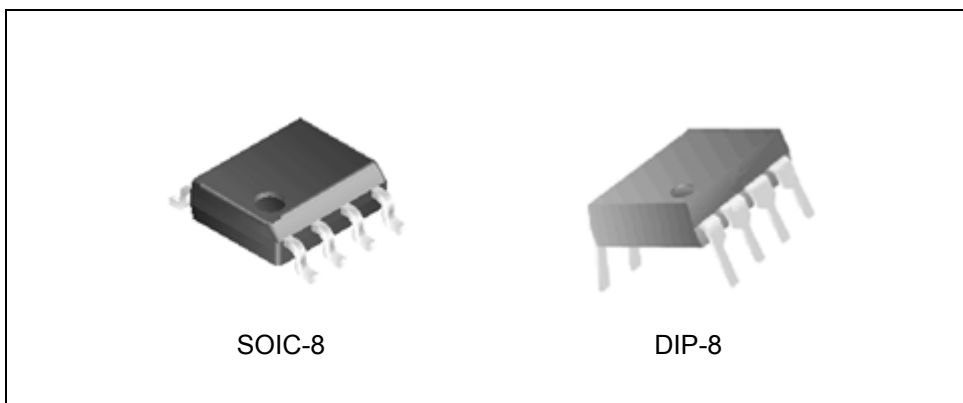


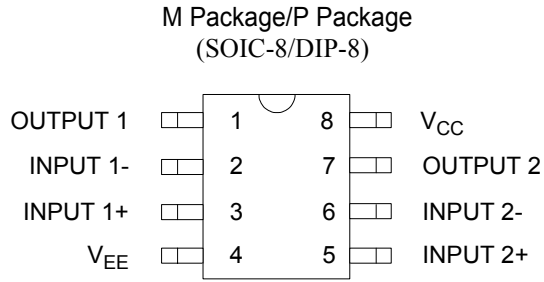
Figure 1. Package Types of AZ4558



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AZ4558

Pin Configuration



Top View

Figure 2. Pin Configuration of AZ4558

Functional Block Diagram

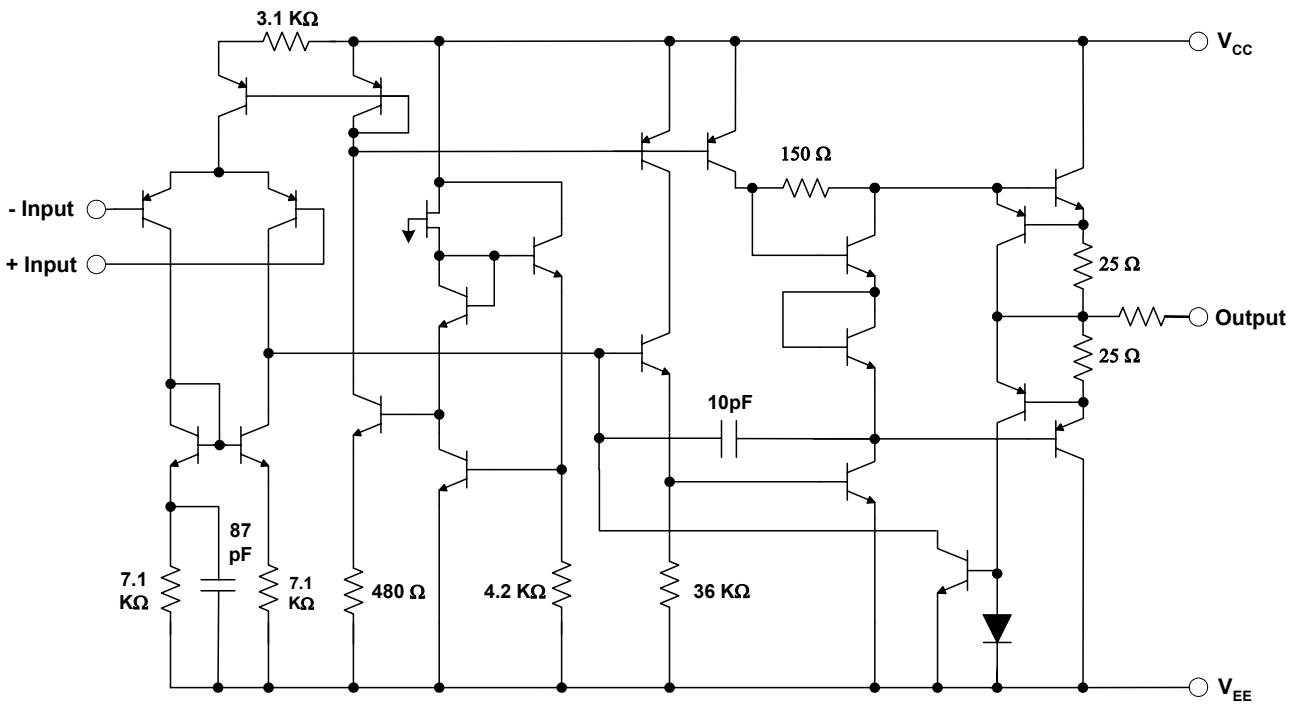


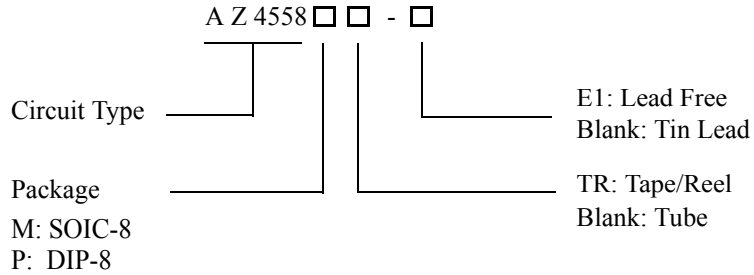
Figure 3. Representative Schematic Diagram of AZ4558 (Each amplifier)



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AZ4558

Ordering Information



Package	Temperature Range	Part Number		Marking ID		Packing Type
		Tin Lead	Lead Free	Tin Lead	Lead Free	
SOIC-8	-40 to 85°C	AZ4558M	AZ4558M-E1	4558M	4558M-E1	Tube
		AZ4558MTR	AZ4558MTR-E1	4558M	4558M-E1	Tape/Reel
DIP-8	-40 to 85°C	AZ4558P	AZ4558P-E1	AZ4558P	AZ4558P-E1	Tube

The listed part numbers are used during the transition to lead-free products. After the transition completed, lead-free products will be considered as the "standard" and we will resume the original part numbers.

**DUAL OPERATIONAL AMPLIFIERS****AZ4558****Absolute Maximum Ratings (Note 1)**

Parameter	Symbol	Value		Unit
Power Supply Voltage	V_{CC}	+ 20		V
	V_{EE}	- 20		
Differential Input Voltage	V_{ID}	± 30		V
Input Voltage	V_{IC}	± 15		V
Power Dissipation	P_D	DIP	500	mW
		SOIC	800	
Operating Temperature Range	T_{OP}	-40 to 85		$^{\circ}C$
Storage Temperature Range	T_{STG}	-40 to 125		$^{\circ}C$

Note 1: Stresses greater than those listed under "Absolute Maximum Ratings" may cause permanent damage to the device. These are stress ratings only, and functional operation of the device at these or any other conditions beyond those indicated under "Recommended Operating Conditions" is not implied. Exposure to "Absolute Maximum Ratings" for extended periods may affect device reliability.

Recommended Operating Conditions

Parameter	Min	Max	Unit
Supply Voltage	± 4	± 18	V



DUAL OPERATIONAL AMPLIFIERS

AZ4558

Electrical Characteristics

Operating Conditions: $V_{CC} = +15V$, $V_{EE} = -15V$, $T_A = 25^\circ C$ unless otherwise specified.

Parameter	Conditions	Min	Typ	Max	Unit
Input Offset Voltage			0.5	6	mV
Input Bias Current	$V_{CM} = 0V$		25	250	nA
Input Offset Current	$V_{CM} = 0V$		2.5	100	nA
Input Resistance		0.3	5		MΩ
Supply Current	$R_L = \infty$, Over full temperature range		3.3	5.7	mA
Large Signal Voltage Gain	$R_L \geq 2K\Omega$, $V_O = \pm 10V$	85	100		dB
Common Mode Rejection Ratio	$R_s \leq 10k\Omega$	80	92		dB
Power Supply Rejection Ratio	$R_s \leq 10k\Omega$	80	95		dB
Output Current	Source	$V_+ = 1V$, $V_- = 0V$, $V_O = 2V$		50	mA
	Sink	$V_+ = 0V$, $V_- = 1V$, $V_O = 2V$		50	mA
Output Voltage Swing	$R_L \geq 2K\Omega$	± 10	± 13		V
	$R_L \geq 10K\Omega$	± 12	± 14		
Slew Rate			1.3		V / μS
Equivalent Input Noise Voltage	$R_s = 50\Omega$, $f = 1KHz$		10		nV/ \sqrt{Hz}
Gain Bandwidth Product			3.4		MHz



DUAL OPERATIONAL AMPLIFIERS

AZ4558

Typical Performance Characteristics

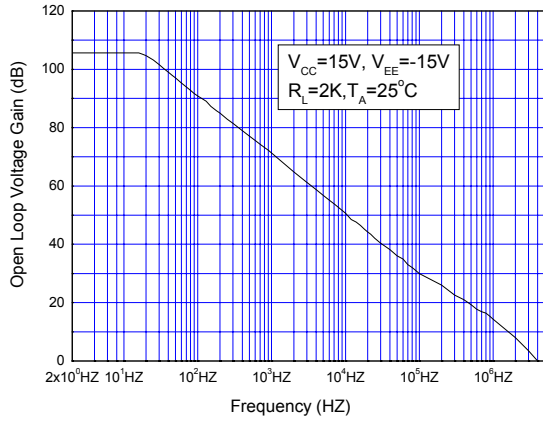


Figure 4. Open Loop Voltage Gain vs. Frequency

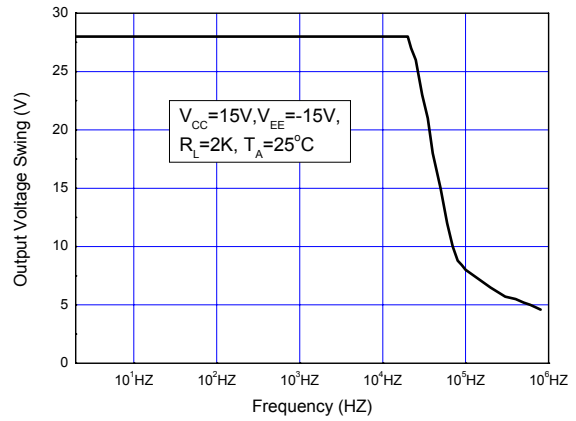


Figure 5. Maximum Output Voltage Swing vs. Frequency

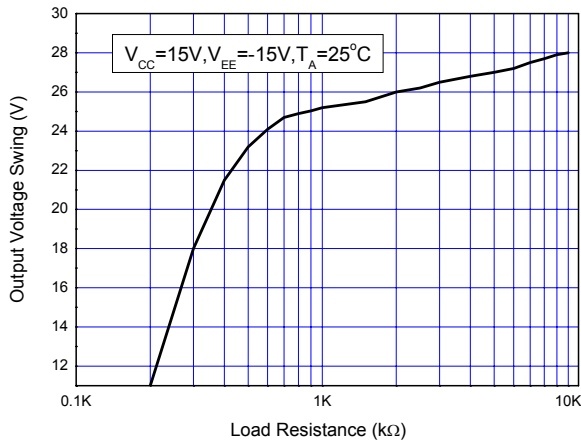


Figure 6. Maximum Output Voltage Swing vs. Load Resistance

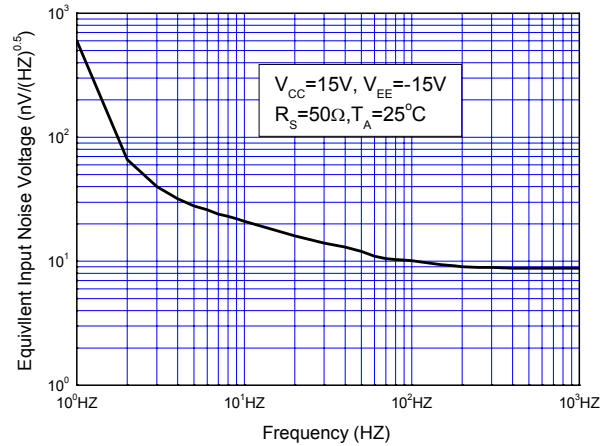


Figure 7. Equivalent Input Noise Voltage vs. Frequency



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Typical Performance Characteristics (Continued)

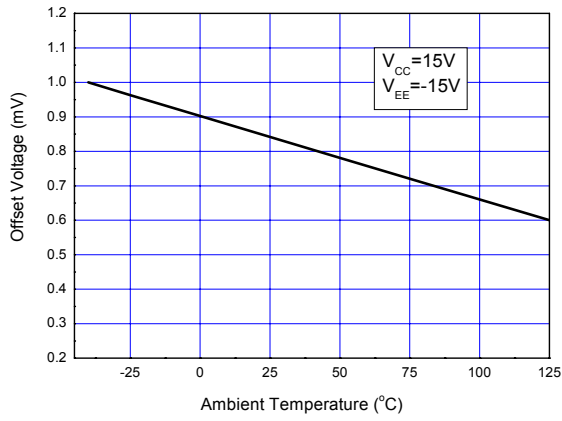


Figure 8. Input Offset Voltage vs. Temperature

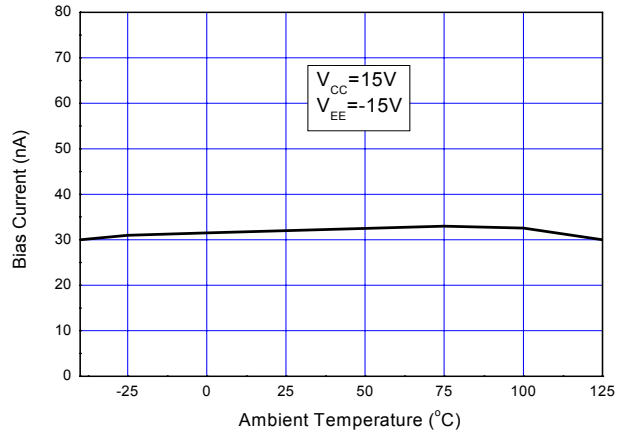


Figure 9. Input Bias Current vs. Temperature

Typical Application

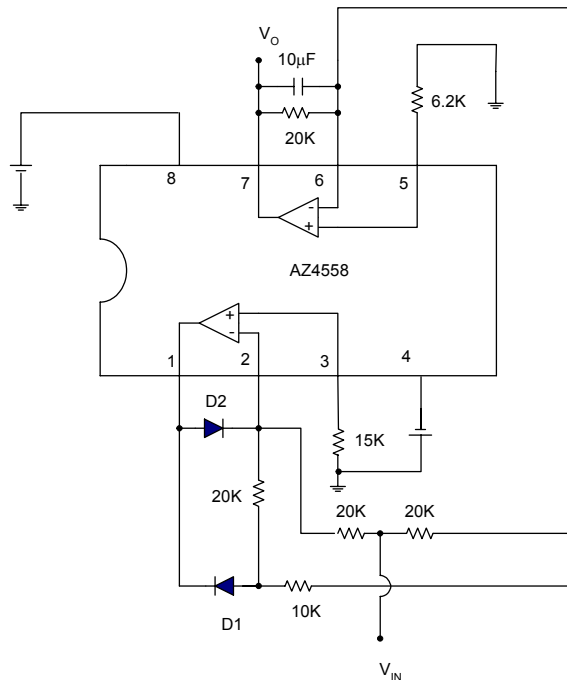


Figure 10. Application of AZ4558 in an AC/DC Converter



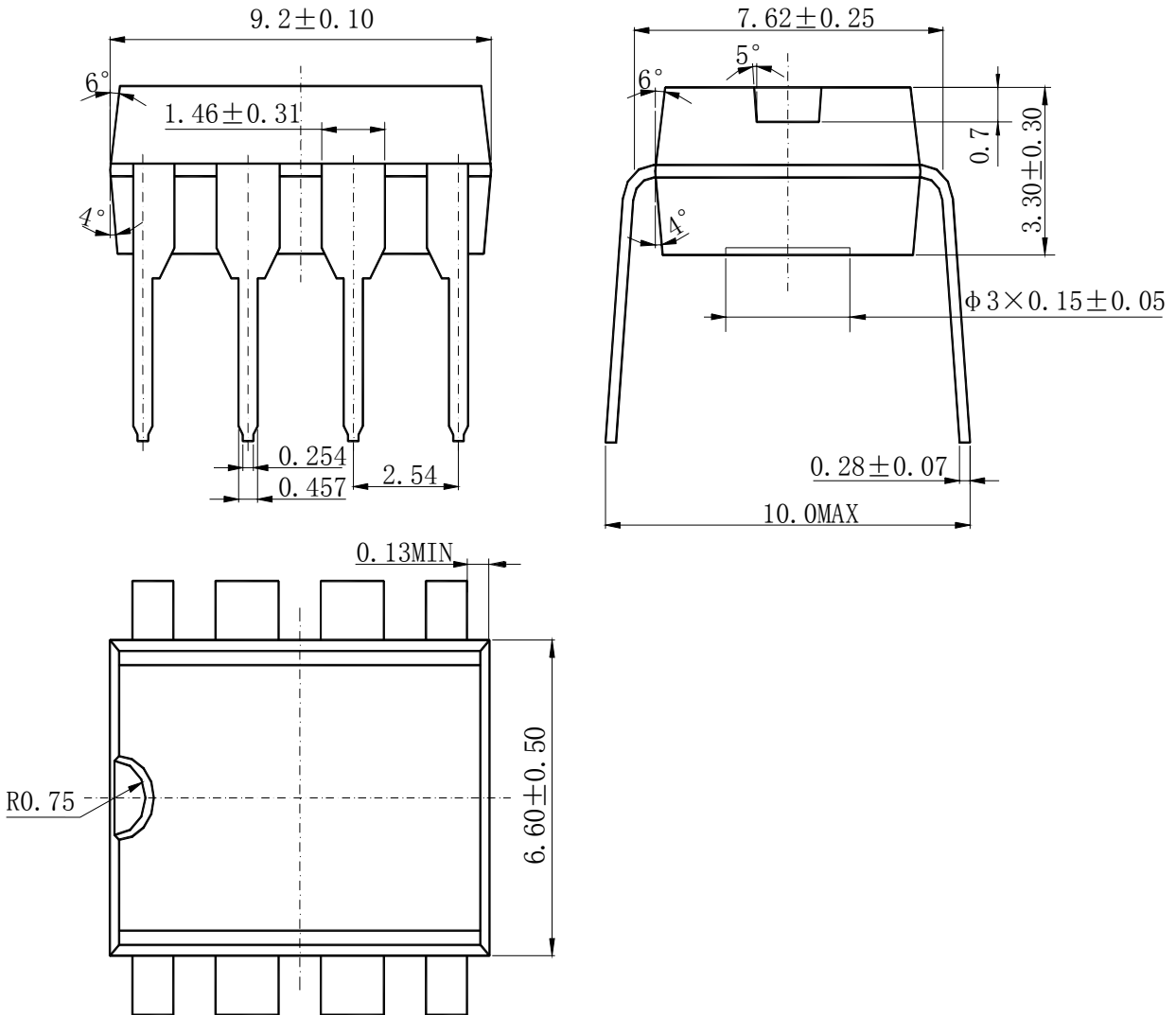
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AZ4558

Mechanical Dimensions

DIP - 8

Unit: mm





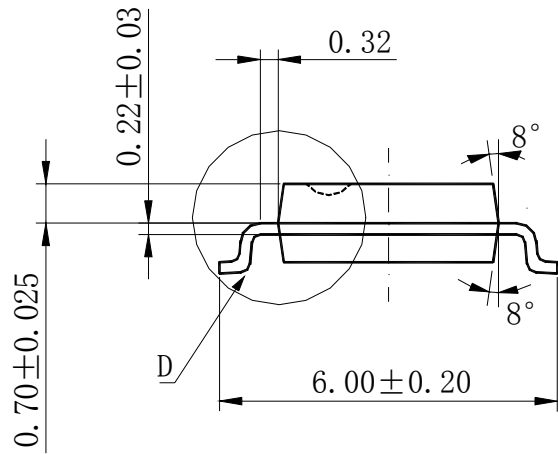
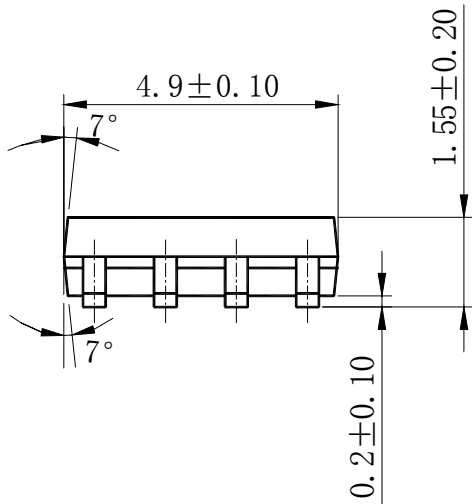
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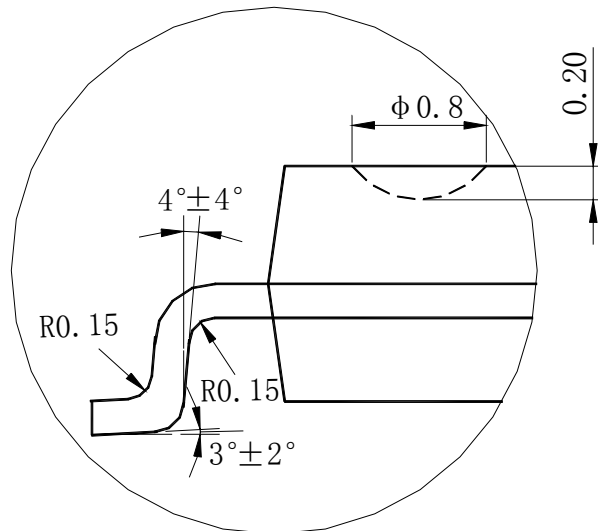
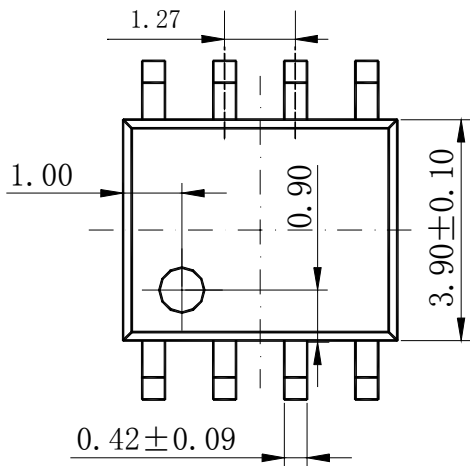
Mechanical Dimensions (Continued)

SOIC - 8

Unit: mm



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