

LT1017/LT1018

ABSOLUTE MAXIMUM RATINGS (Note 1)

Supply Voltage.....	40V	Operating Temperature Range	
Differential Input Voltage.....	40V	LT1017M/LT1018M.....	-55°C to 125°C
Input Voltage.....	-0.3V to 40V	LT1017C/LT1018C.....	0°C to 70°C
Short-Circuit Duration.....	Indefinite	LT1017I/LT1018I.....	-40°C to 85°C
Storage Temperature Range.....	-65°C to 150°C	Lead Temperature (Soldering, 10 sec).....	300°C

PACKAGE/ORDER INFORMATION

<p>S8 PACKAGE 8-LEAD PLASTIC SO $T_{JMAX} = 150^{\circ}C, \theta_{JA} = 190^{\circ}C/W$</p>		<p>N8 PACKAGE 8-LEAD PDIP $T_{JMAX} = 150^{\circ}C, \theta_{JA} = 140^{\circ}C/W$</p>	
ORDER PART NUMBER	S8 PART MARKING	ORDER PART NUMBER	PART MARKING
LT1017CS8 LT1017IS8 LT1018CS8 LT1018IS8	1017 1017I 1018 1018I	LT1017CN8 LT1017IN8 LT1018CN8	
<p>H PACKAGE 8-LEAD TO-5 METAL CAN $T_{JMAX} = 150^{\circ}C, \theta_{JA} = 150^{\circ}C/W, \theta_{JC} = 45^{\circ}C/W$ OBsolete PACKAGE Consider the 8-Lead Plastic Dip Package For Alternate Source</p>		<p>SW PACKAGE 16-LEAD PLASTIC SO $T_{JMAX} = 150^{\circ}C, \theta_{JA} = 130^{\circ}C/W$</p>	
ORDER PART NUMBER	PART MARKING	ORDER PART NUMBER	PART MARKING
LT1017MH LT1017CH LT1018MH LT1018CH		LT1017CSW LT1018CSW	
<p>Order Options Tape and Reel: Add #TR Lead Free: Add #PBF Lead Free Tape and Reel: Add #TRPBF Lead Free Part Marking: http://www.linear.com/leadfree/</p>			

*The temperature grade is identified by a label on the shipping container. Consult LTC Marketing for parts specified with wider operating temperature ranges.

10178ff

ELECTRICAL CHARACTERISTICS The ● denotes the specifications which apply over the full operating temperature range of –55°C to 85°C for M grade parts, –40°C to 85°C for I grade parts and 0°C to 70°C for C grade parts.

PARAMETER	CONDITIONS		LT1017			LT1018			UNITS
			MIN	TYP	MAX	MIN	TYP	MAX	
Offset Voltage (Note 2)	$\pm 0.75V \leq V_S \leq \pm 20V$	25°C		0.4	1		0.4	1	mV
		● 125°C		0.5	1.4		0.5	1.4	mV
Bias Current	$\pm 0.75V \leq V_S \leq \pm 20V$	25°C		5	15		15	75	nA
		● 125°C		7	25		18	100	nA
Offset Current	$\pm 0.75V \leq V_S \leq \pm 20V$	25°C		0.4	2		1	8	nA
		● 125°C		0.5	3		1.6	12	nA
Common Mode Rejection Ratio	$V_S = \pm 20V, -20V \leq V_{CM} \leq 19.1V$	25°C	105	115		105	115		dB
		● 125°C	100	115		100	115		dB
Power Supply Rejection Ratio	$\pm 0.75V \leq V_S \leq \pm 20V$	25°C	96	110		96	110		dB
		● 125°C	95	105		95	105		dB
Gain	No Load, $V_{OUT} = \pm 19.9V$ (Note 3)	25°C	110	115		110	125		dB
		● 125°C	105	115		105	120		dB
Output Sink Current	$V^+ = 4.5V, V^- = 0V$ Overdrive > 30mV	25°C	30	65		35	70		mA
		● 125°C	25	50		25	50		mA
Output Source Current	$V^+ = 40V, V^- = 0V$ $V_{IN} = 5mV, V_{OUT} = 0.4V$	25°C	30	75		75	250		μA
		● 125°C	25	70		50	220		μA
Negative Output Saturation	$I_{OUT} = 0mA$ $V^+ = 4.5V, V^- = 0V$ $V_{IN} = -10mV$	25°C		5	20		5	15	mV
		● 25°C		35	60		35	60	mV
Positive Output Saturation	$I_{OUT} = 0\mu A$ $V^+ = 4.5V, V^- = 0V$ $V_{IN} = -10mV$	25°C		40	80		35	80	mV
		● 25°C		175	250		175	250	mV
Output Sink Current	$V^+ = 1.2V, V^- = 0V$ $V_{IN} = 5mV, V_{OUT} = 0.4V$	25°C	25	35		70	140		μA
		● 125°C	15	20		45	120		μA
Output Source Current	$V^+ = 40V, V^- = 0V$ $V_{IN} = 5mV, V_{OUT} = 0.4V$	25°C	25	75		50	200		μA
		● 125°C	25	75		50	200		μA
Negative Output Saturation	$I_{OUT} = 0mA$ $V^+ = 4.5V, V^- = 0V$ $V_{IN} = -10mV$	25°C		5	20		8	20	mV
		● 25°C		40	75		35	70	mV
Positive Output Saturation	$I_{OUT} = 0mA$ $V^+ = 4.5V, V^- = 0V$ $V_{IN} = -10mV$	25°C		75	150		70	150	mV
		● 25°C		150	300		150	300	mV
Negative Output Saturation	$I_{OUT} = 0mA$ $V^+ = 4.5V, V^- = 0V$ $V_{IN} = -10mV$	25°C		600	900		500	900	mV
		● 25°C		600	900		500	900	mV
Negative Output Saturation	$I_{OUT} = 0mA$ $V^+ = 4.5V, V^- = 0V$ $V_{IN} = -10mV$	125°C		25	50		10	40	mV
		● 125°C		60	100		60	100	mV
Positive Output Saturation	$I_{OUT} = 0\mu A$ $V^+ = 4.5V, V^- = 0V$ $V_{IN} = -10mV$	125°C		100	200		110	200	mV
		● 125°C		300	600		300	400	mV
Positive Output Saturation	$I_{OUT} = 0\mu A$ $V^+ = 4.5V, V^- = 0V$ $V_{IN} = -10mV$	125°C		50	100		50	100	mV
		● 125°C		50	100		50	100	mV

ELECTRICAL CHARACTERISTICS

The ● denotes the specifications which apply over the full operating temperature range of -55°C to 85°C for M grade parts, -40°C to 85°C for I grade parts and 0°C to 70°C for C grade parts.

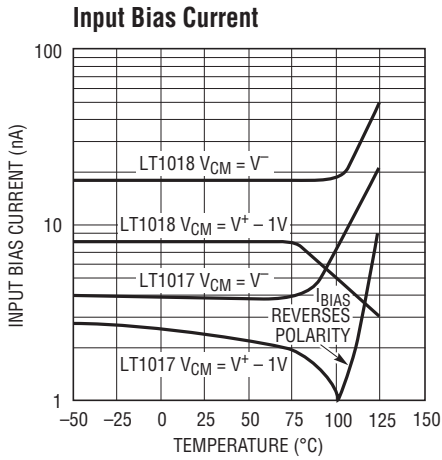
PARAMETER	CONDITIONS		LT1017			LT1018			UNITS
			MIN	TYP	MAX	MIN	TYP	MAX	
Leakage Current	$V_S = 5\text{V}$, $V_{\text{OUT}} = 40\text{V}$ $V_{\text{IN}} \geq 100\text{mV}$	25°C	0.5	3		1	8	μA	
		● 125°C	0.6	3		1.8	10	μA	
Supply Current	$V_S = 5\text{V}$	25°C	30	60		110	250	μA	
		● 125°C	40	80		110	250	μA	
	$V_S = 40\text{V}$	25°C	40	90		130	250	μA	
		● 125°C	55	100		140	270	μA	
Minimum Operating Voltage	$I_{\text{OUT}} = 1\text{mA}$	25°C		1.15			1.2	V	
		●		1.15			1.2	V	
		125°C		1.15			1.2	V	

Note 1: Stresses beyond those listed under Absolute Maximum Ratings may cause permanent damage to the device. Exposure to any Absolute Maximum Rating condition for extended periods may affect device reliability and lifetime.

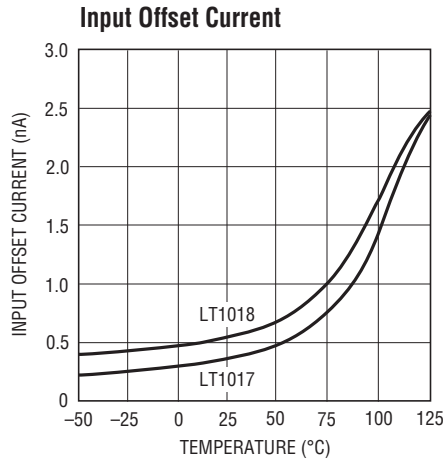
Note 2: Offset voltage is guaranteed over a common mode voltage range of $V^- \leq V_{\text{IN}} \leq (V^+ - 0.9\text{V})$.

Note 3: No load gain is guaranteed but not tested (LT1017 only).

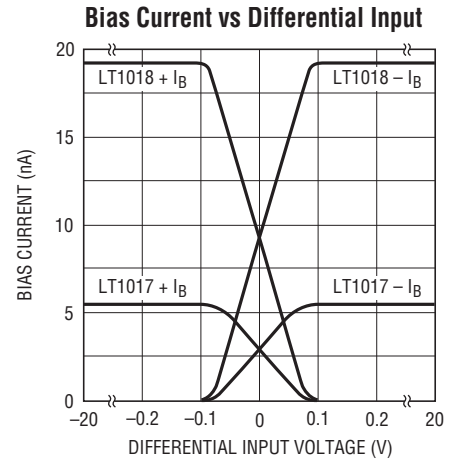
TYPICAL PERFORMANCE CHARACTERISTICS



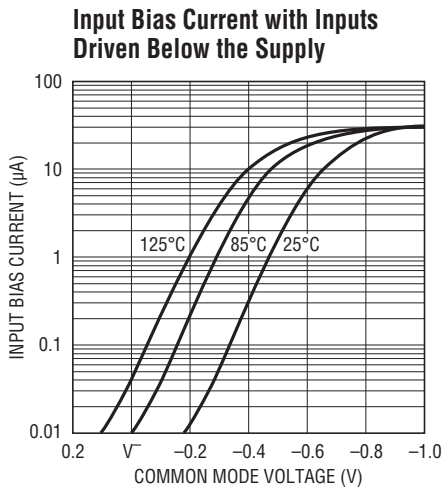
1017/18 G01



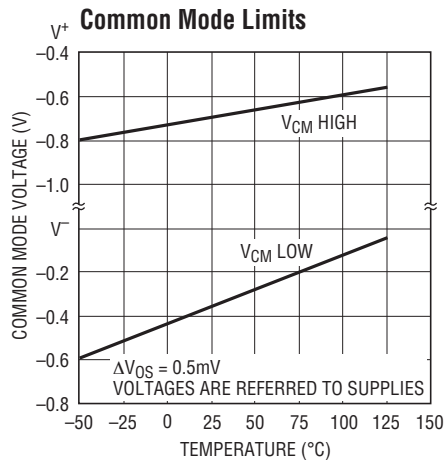
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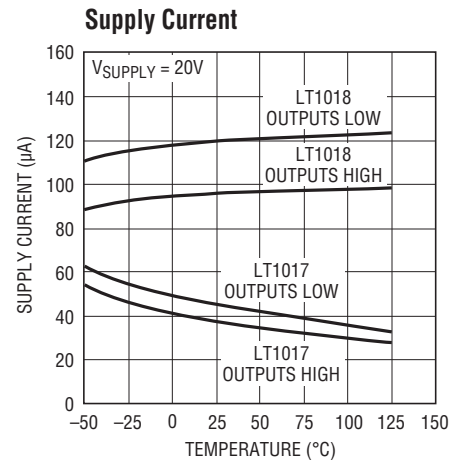
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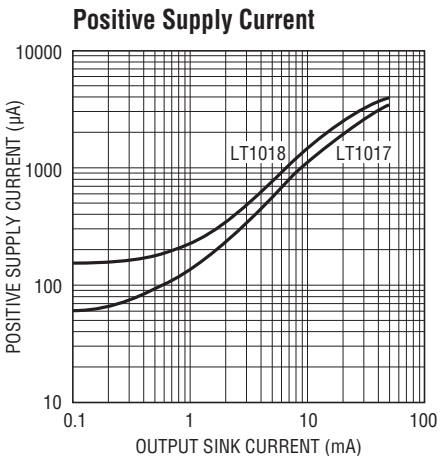
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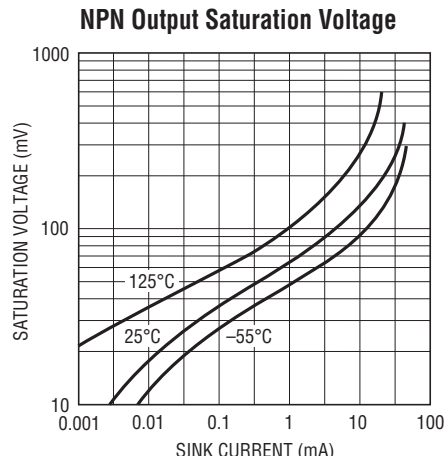
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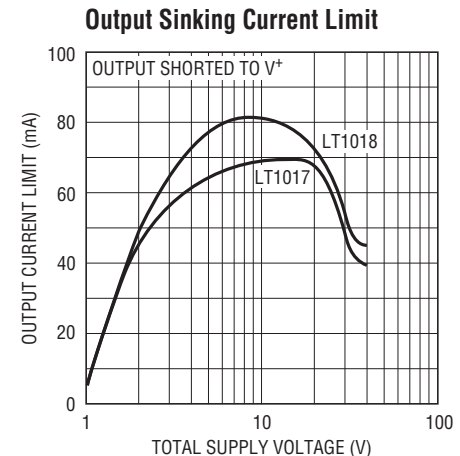
1017/18 G06



1017/18 G07



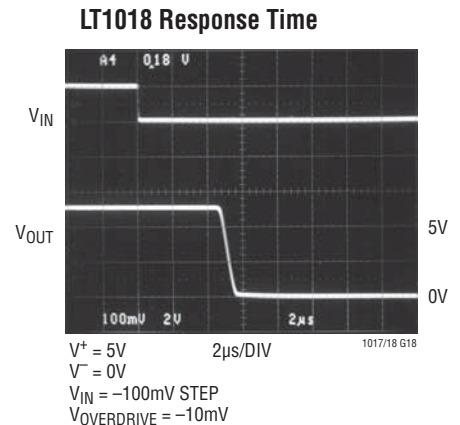
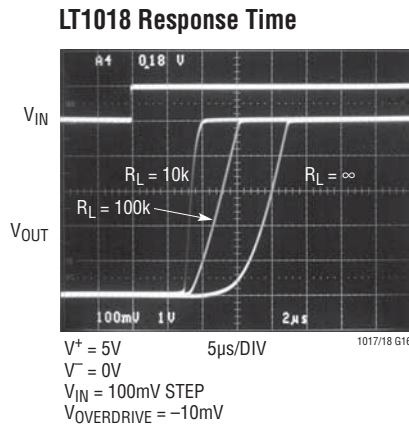
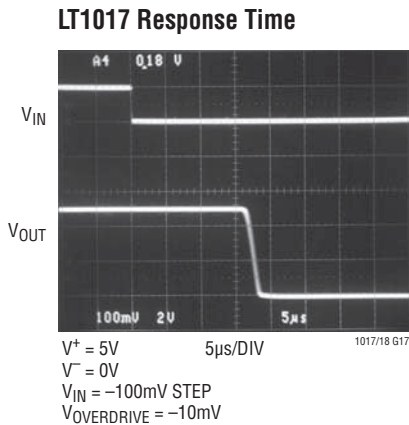
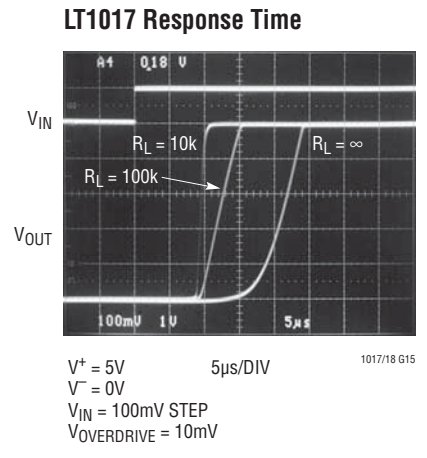
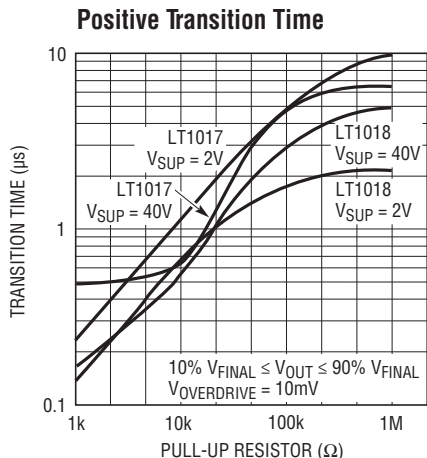
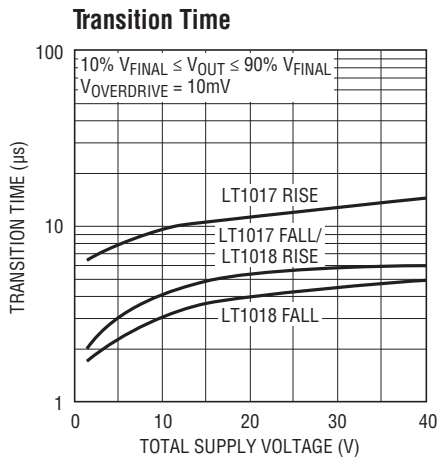
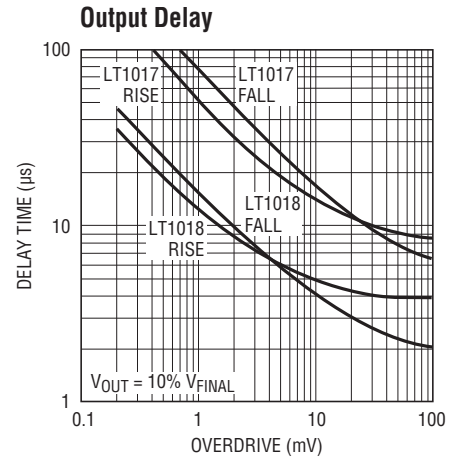
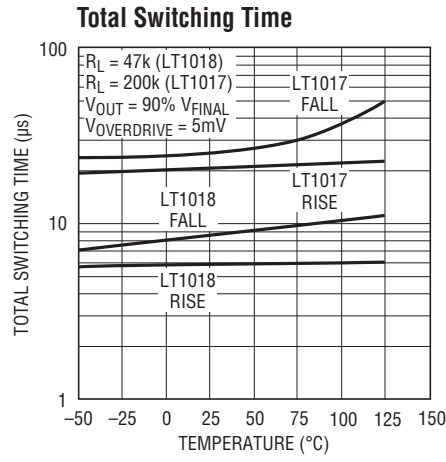
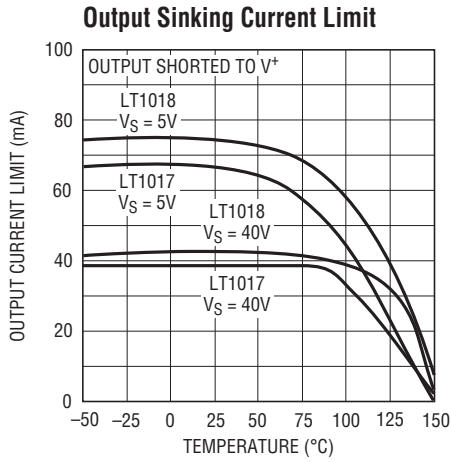
1017/18 G08



1017/18 G09

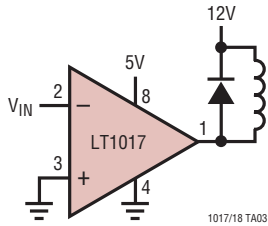
LT1017/LT1018

TYPICAL PERFORMANCE CHARACTERISTICS

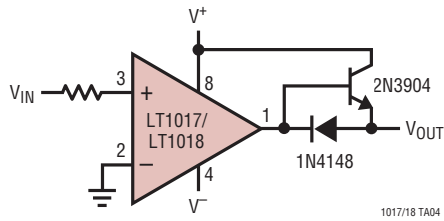


TYPICAL APPLICATIONS

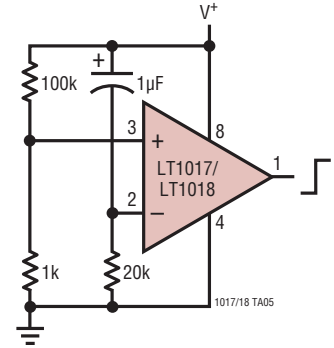
Driving Relays



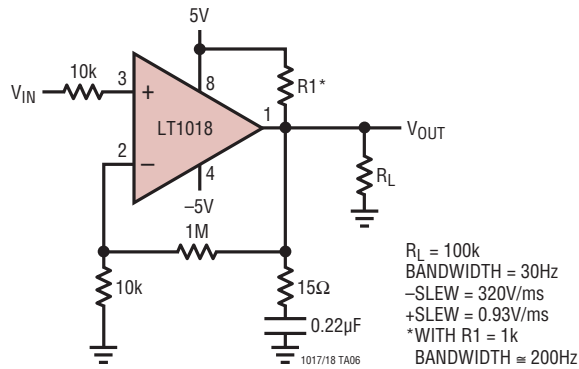
Increasing Positive Output Current



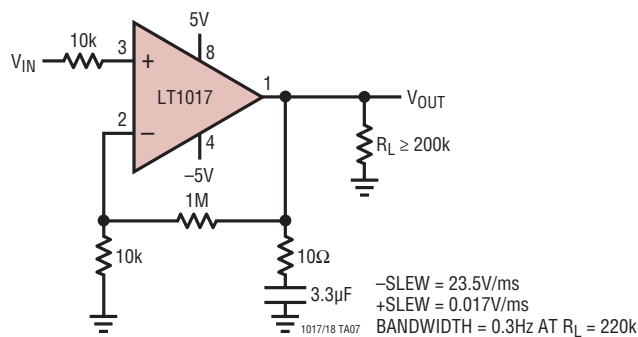
Delay On Power Up



LT1018 Op Amp, $A_V = 100$

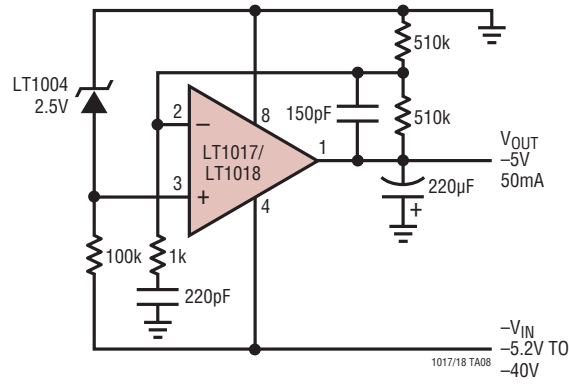


LT1017 Op Amp, $A_V = 100$

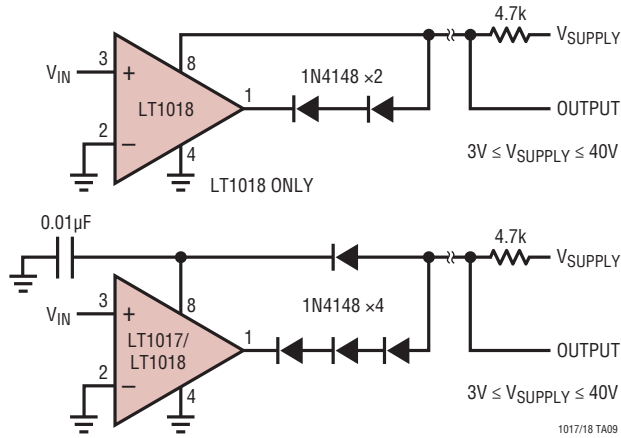


TYPICAL APPLICATIONS

Negative Voltage Regulator

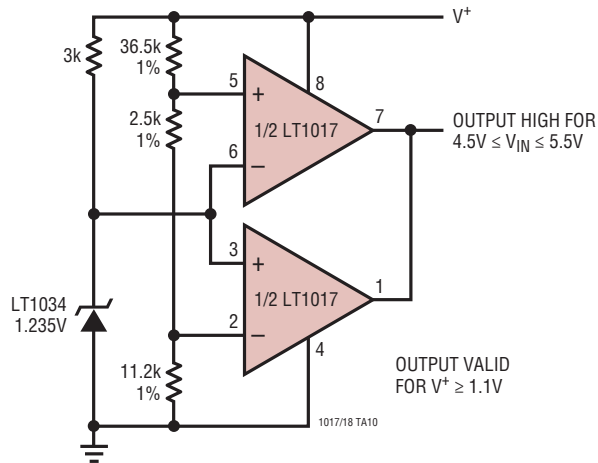


2-Wire Comparator

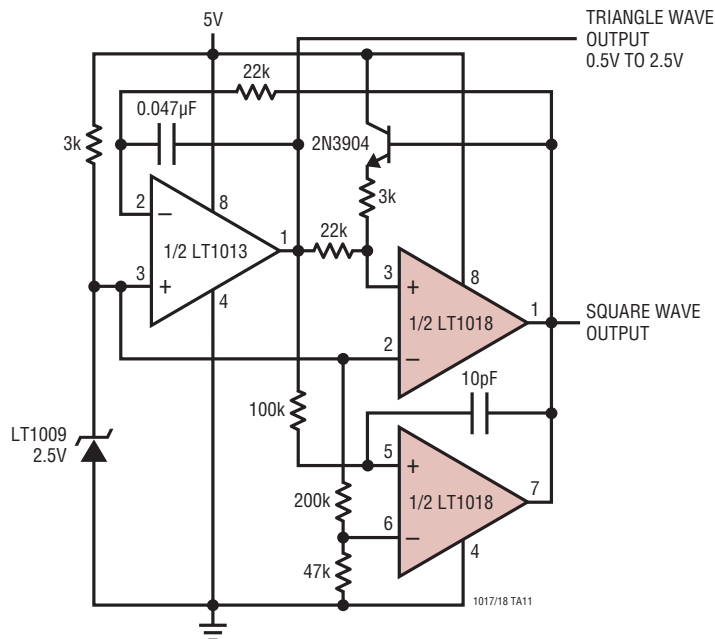


TYPICAL APPLICATIONS

5V Power Supply Monitor

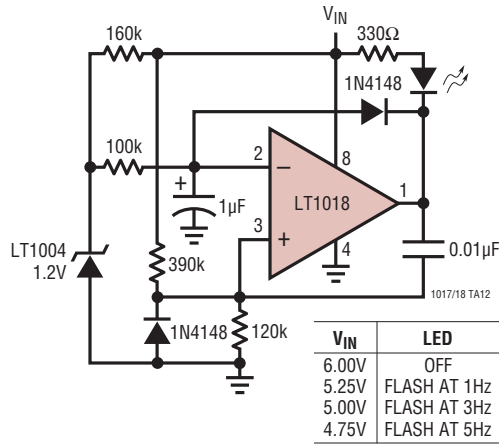


Precise Tri-Wave Generator

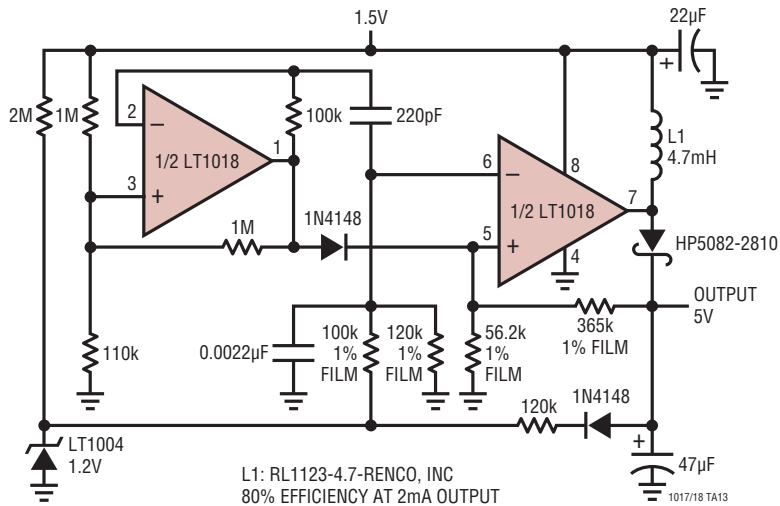


TYPICAL APPLICATIONS

Power Supply Monitor

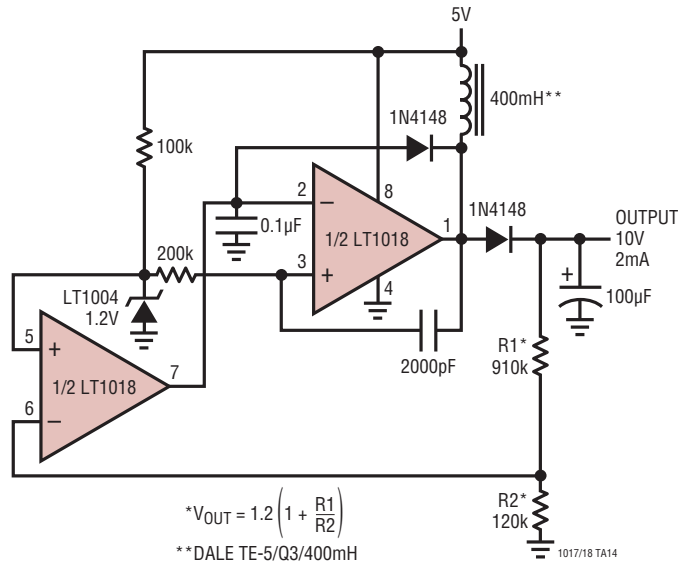


1.5V Input Flyback Regulator

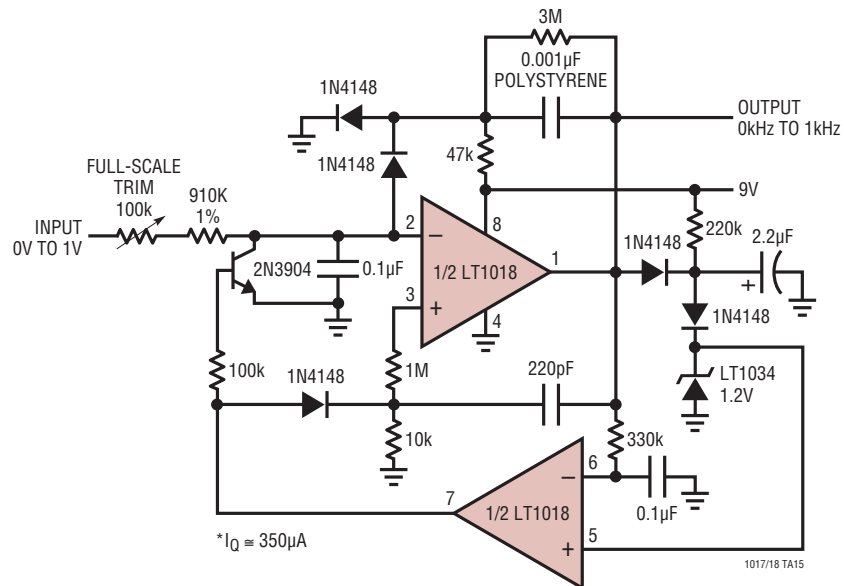


TYPICAL APPLICATIONS

Regulated Step-Up Converter

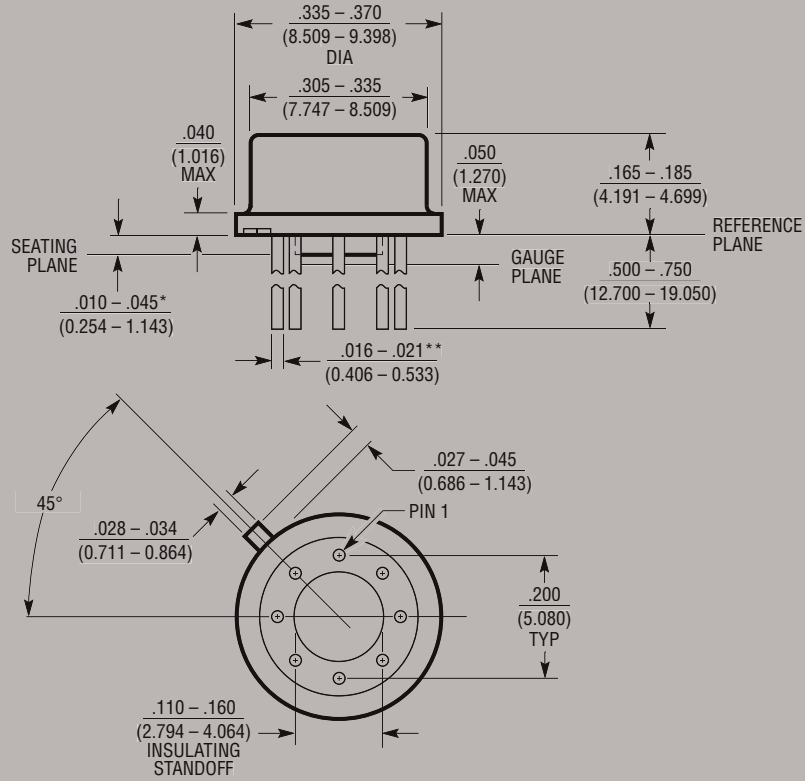


Low Power* V-to-F Converter



PACKAGE DESCRIPTION

H Package
8-Lead TO-5 Metal Can (.200 Inch PCD)
 (Reference LTC DWG # 05-08-1320)



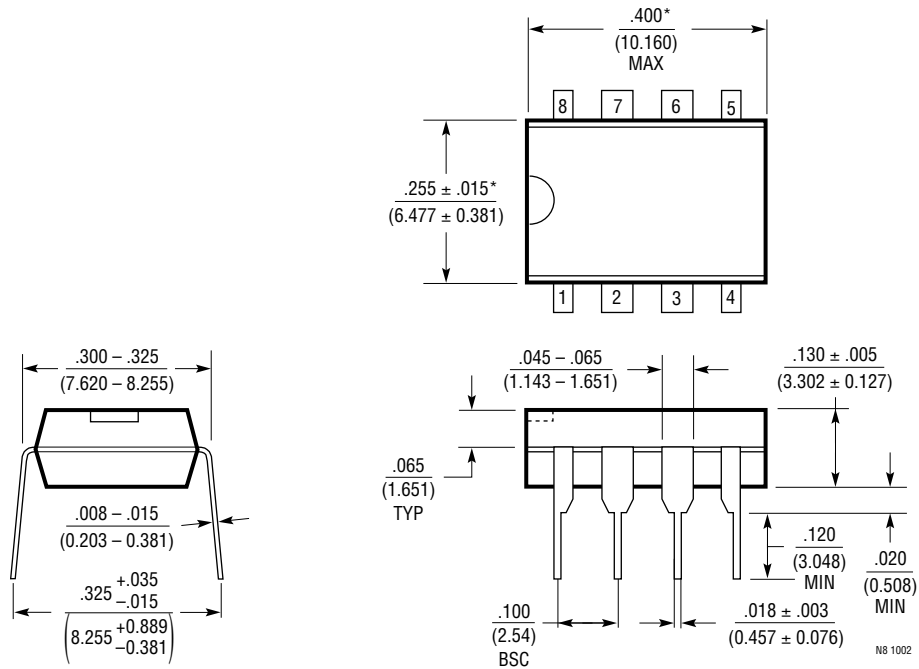
*LEAD DIAMETER IS UNCONTROLLED BETWEEN THE REFERENCE PLANE AND THE SEATING PLANE

**FOR SOLDER DIP LEAD FINISH, LEAD DIAMETER IS $\frac{.016 - .024}{(0.406 - 0.610)}$ H8(TO-5) 0.200 PCD 0204

OBSOLETE PACKAGE

PACKAGE DESCRIPTION

N8 Package
8-Lead PDIP (Narrow .300 Inch)
 (Reference LTC DWG # 05-08-1510)

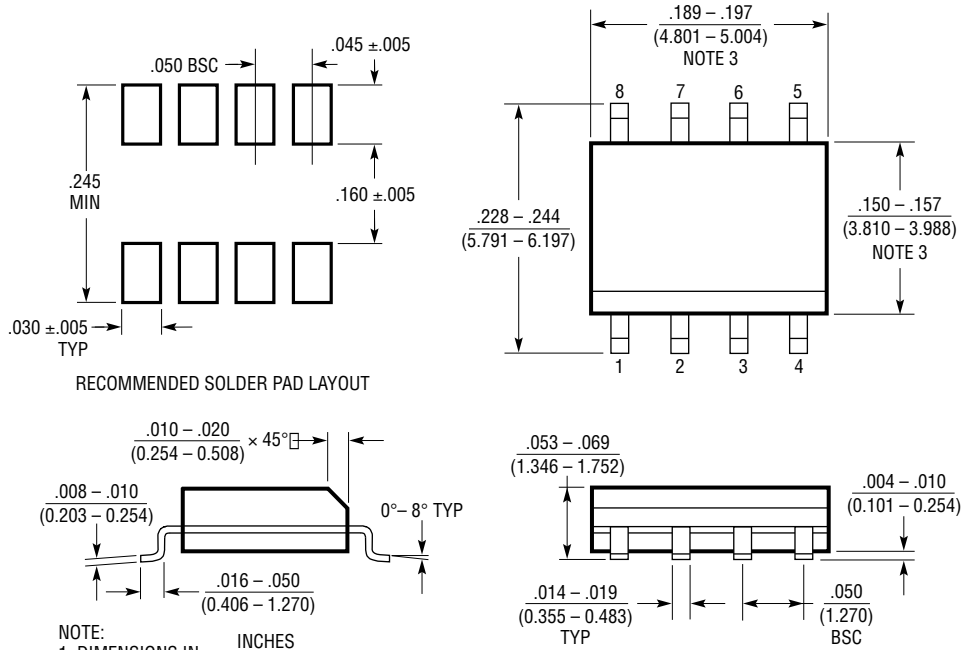


NOTE:
 1. DIMENSIONS ARE $\frac{\text{INCHES}}{\text{MILLIMETERS}}$
 *THESE DIMENSIONS DO NOT INCLUDE MOLD FLASH OR PROTRUSIONS.
 MOLD FLASH OR PROTRUSIONS SHALL NOT EXCEED .010 INCH (0.254mm)

N8 1002

PACKAGE DESCRIPTION

S8 Package
8-Lead Plastic Small Outline (Narrow .150 Inch)
 (Reference LTC DWG # 05-08-1610)

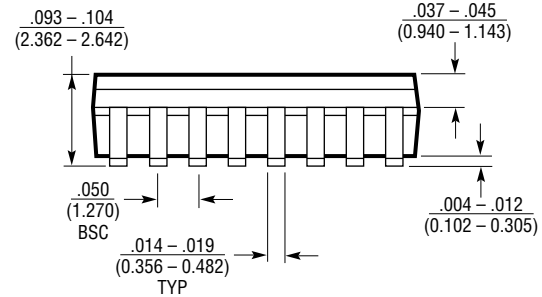
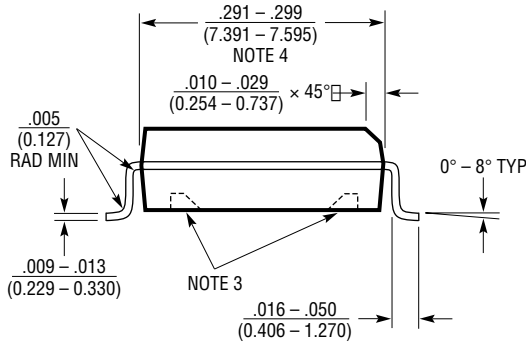
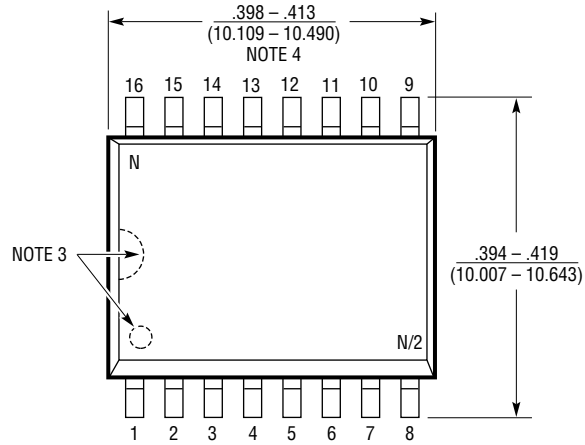
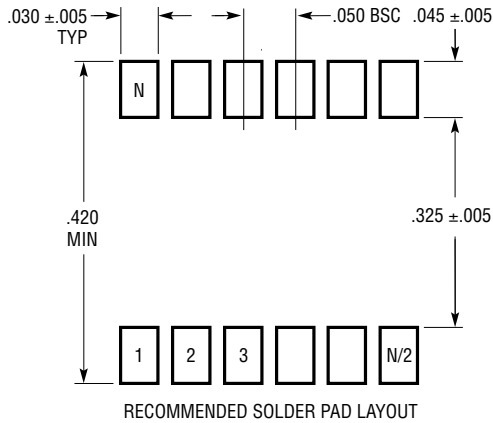


- NOTE:
 1. DIMENSIONS IN $\frac{\text{INCHES}}{\text{MILLIMETERS}}$
 2. DRAWING NOT TO SCALE
 3. THESE DIMENSIONS DO NOT INCLUDE MOLD FLASH OR PROTRUSIONS.
 MOLD FLASH OR PROTRUSIONS SHALL NOT EXCEED $.006''$ (0.15mm)

S08 0303

PACKAGE DESCRIPTION

SW Package
16-Lead Plastic Small Outline (Wide .300 Inch)
 (Reference LTC DWG # 05-08-1620)

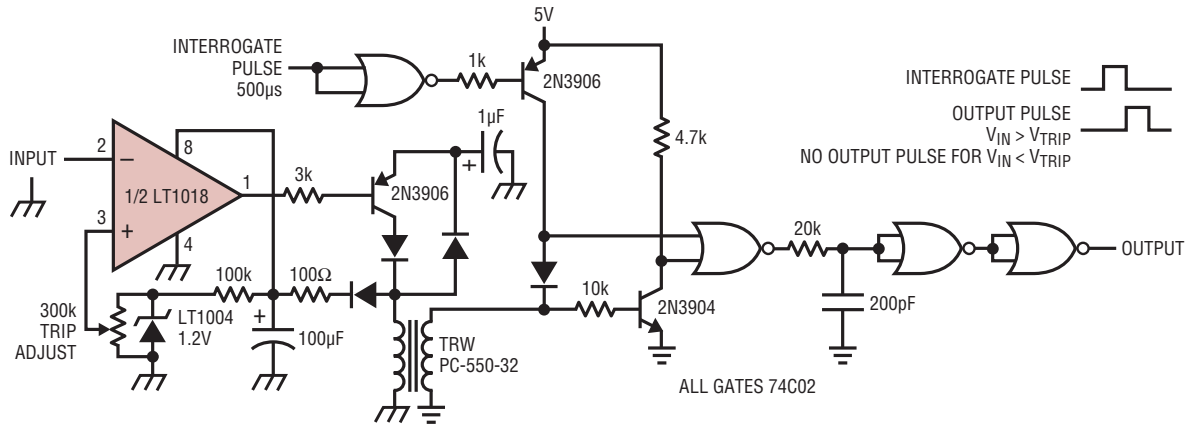


- NOTE:
1. DIMENSIONS IN $\frac{\text{INCHES}}{\text{MILLIMETERS}}$
 2. DRAWING NOT TO SCALE
 3. PIN 1 IDENT, NOTCH ON TOP AND CAVITIES ON THE BOTTOM OF PACKAGES ARE THE MANUFACTURING OPTIONS. THE PART MAY BE SUPPLIED WITH OR WITHOUT ANY OF THE OPTIONS
 4. THESE DIMENSIONS DO NOT INCLUDE MOLD FLASH OR PROTRUSIONS. MOLD FLASH OR PROTRUSIONS SHALL NOT EXCEED .006" (0.15mm)

S16 (WIDE) 0502

TYPICAL APPLICATION

Fully Isolated Limit Comparator



RELATED PARTS

PART NUMBER	DESCRIPTION	COMMENTS
LT1011/LT1011A	Voltage Comparators	Improved LT111A, 0.5mV $V_{OS(MAX)}$, 25nA $I_{B(MAX)}$, 3nA $I_{OS(MAX)}$, 250ns $t_{PD(MAX)}$
LT1020	Micropower Regulator and Comparator	40μA I_{SUPPLY} , 125mA I_{OUT} , 2.5V Reference Voltage
LTC1040	Dual Micropower Comparator	1.5μW (1Sample/Second), 0.5mV $V_{OS(MAX)}$, Rail-to-Rail Input
LT1120/LT1120A	Micropower Regulator with Comparator and Shutdown	20μA I_{SUPPLY} , 125mA I_{OUT} , 2.5V Reference Voltage
LT319A	Dual Comparators	0.5mV $V_{OS(MAX)}$, 25mA I_{OUT} , 80ns t_{PD}
LT1671	Single Supply Ground Sensing Comparator	450μA I_{SUPPLY} , 60ns t_{PD} , 0.8mV V_{OS}
LT1716	Micropower, 44V, SOT-23 Ground Sensing Comparator	Input Common Mode Range Extends from -5V to 44V from Negative Supply

Mouser Electronics

Authorized Distributor

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[LT1018CS8#TRPBF](#) [LT1017CS8#TR](#) [LT1017CSW#PBF](#) [LT1017IS8#TR](#) [LT1018IS8#PBF](#) [LT1018CN8#PBF](#)
[LT1018CSW#TRPBF](#) [LT1018CSW#TR](#) [LT1017CS8#TRPBF](#) [LT1017CSW#TR](#) [LT1018IS8#TRPBF](#) [LT1018CS8](#)
[LT1017CN8#PBF](#) [LT1017IS8#TRPBF](#) [LT1018CN8](#) [LT1017IS8](#) [LT1018CS8#PBF](#) [LT1018CSW](#) [LT1017CS8](#)
[LT1017CSW#TRPBF](#) [LT1017IN8#PBF](#) [LT1017IS8#PBF](#) [LT1018IS8](#)