

TL750L, TL751L SERIES LOW-DROPOUT VOLTAGE REGULATORS

SLVS017R – SEPTEMBER 1987 – REVISED AUGUST 2003

description/ordering information (continued)

ORDERING INFORMATION

T _J	V _O TYP AT 25°C	PACKAGE†		ORDERABLE PART NUMBER	TOP-SIDE MARKING
0°C to 125°C	5 V	POWER-FLEX (KTE)	Reel of 2000	TL750L05CKTER	TL750L05C
		SOIC (D)	Tube of 75	TL750L05CD	50L05C
			Reel of 2500	TL750L05CDR	
			Tube of 75	TL751L05CD	51L05C
			Reel of 2500	TL751L05CDR	
		TO-226 / TO-92 (LP)	Bulk of 1000	TL750L05CLP	750L05C
	Reel of 2000		TL750L05CLPR		
	TO-220 (KC)	Tube of 50	TL750L05CKC	TL750L05C	
	8 V	SOIC (D)	Tube of 75	TL750L08CD	50L08C
			Reel of 2500	TL750L08CDR	
		TO-226 / TO-92 (LP)	Bulk of 1000	TL750L08CLP	750L08C
	10 V	PDIP (P)	Tube of 50	TL751L10CP	TL751L10C
		SOIC (D)	Tube of 75	TL750L10CD	50L10C
			Reel of 2500	TL750L10CDR	
			Tube of 75	TL751L10CD	51L10C
			Reel of 2500	TL751L10CDR	
		TO-226 / TO-92 (LP)	Bulk of 1000	TL750L10CLP	750L10C
	Reel of 2000		TL750L10CLPR		
	12 V	SOIC (D)	Tube of 75	TL750L12CD	50L12C
			Reel of 2500	TL750L12CDR	
Tube of 75			TL751L12CD	51L12C	
Reel of 2500			TL751L12CDR		
TO-226 / TO-92 (LP)		Bulk of 1000	TL750L12CLP	750L12C	

† Package drawings, standard packing quantities, thermal data, symbolization, and PCB design guidelines are available at www.ti.com/sc/package.

DEVICE COMPONENT COUNT	
Transistors	20
JFETs	2
Diodes	5
Resistors	16

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absolute maximum ratings over operating junction temperature range (unless otherwise noted)†

Continuous input voltage	26 V
Transient input voltage, $T_A = 25^\circ\text{C}$ (see Note 1)	60 V
Continuous reverse input voltage	-15 V
Transient reverse input voltage, $t \leq 100$ ms	-50 V
Operating virtual junction temperature, T_J	150°C
Lead temperature 1,6 mm (1/16 inch) for 10 seconds	260 °C
Storage temperature range, T_{Stg}	-65°C to 150°C

† Stresses beyond 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-rated conditions for extended periods may affect device reliability.

NOTE 1: The transient input voltage rating applies to the waveform shown in Figure 1.

package thermal data (see Note 2)

PACKAGE	BOARD	θ_{JC}	θ_{JA}
PDIP (P)	High K, JESD 51-7	57°C/W	85°C/W
POWER-FLEX (KTE)	High K, JESD 51-5	3°C/W	23°C/W
SOIC (D)	High K, JESD 51-7	39°C/W	97°C/W
TO-226 / TO-92 (LP)	High K, JESD 51-7	55°C/W	140°C/W
TO-220 (KC)	High K, JESD 51-5	3°C/W	19°C/W

NOTE 2: Maximum power dissipation is a function of $T_J(\text{max})$, θ_{JA} , and T_A . The maximum allowable power dissipation at any allowable ambient temperature is $P_D = (T_J(\text{max}) - T_A)/\theta_{\text{JA}}$. Operating at the absolute maximum T_J of 150°C can affect reliability.

recommended operating conditions over recommended operating junction temperature range (unless otherwise noted)

			MIN	MAX	UNITS
V_I	Input voltage	TL75xL05	6	26	V
		TL75xL08	9	26	
		TL75xL10	11	26	
		TL75xL12	13	26	
V_{IH}	High-level $\overline{\text{ENABLE}}$ input voltage	TL751Lxx	2	15	V
V_{IL}^\ddagger	Low-level ENABLE input voltage	$T_J = 25^\circ\text{C}$	-0.3	0.8	V
		$T_J = 0^\circ\text{C}$ to 125°C	-0.15	0.8	
I_O	Output current range	TL75xLxx	0	150	mA
T_J	Operating virtual junction temperature	TL75xLxxC	0	125	°C

‡ The algebraic convention, in which the least positive (most negative) value is designated minimum, is used in this data sheet for ENABLE voltage levels and temperature only.



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electrical characteristics, $V_I = 14\text{ V}$, $I_O = 10\text{ mA}$, $T_J = 25^\circ\text{C}$ (unless otherwise noted)

PARAMETER	TEST CONDITIONS†	TL750L05 TL751L05			UNIT	
		MIN	TYP	MAX		
Output voltage	$V_I = 6\text{ V to } 26\text{ V}$, $I_O = 0\text{ to } 150\text{ mA}$	$T_J = 25^\circ\text{C}$	4.80	5	5.2	V
		$T_J = 0^\circ\text{C to } 125^\circ\text{C}$	4.75		5.25	
Input regulation voltage	$V_I = 9\text{ V to } 16\text{ V}$		5	10	mV	
	$V_I = 6\text{ V to } 26\text{ V}$		6	30		
Ripple rejection	$V_I = 8\text{ V to } 18\text{ V}$, $f = 120\text{ Hz}$	60	65		dB	
Output regulation voltage	$I_O = 5\text{ mA to } 150\text{ mA}$		20	50	mV	
Dropout voltage	$I_O = 10\text{ mA}$			0.2	V	
	$I_O = 150\text{ mA}$			0.6		
Output noise voltage	$f = 10\text{ Hz to } 100\text{ kHz}$		500		μV	
Input bias current	$I_O = 150\text{ mA}$		10	12	mA	
	$V_I = 6\text{ V to } 26\text{ V}$, $I_O = 10\text{ mA}$, $T_J = 0^\circ\text{C to } 125^\circ\text{C}$		1	2		
	$\text{ENABLE} > 2\text{ V}$			0.5		

† Pulse-testing techniques are used to maintain the junction temperature as close to the ambient temperature as possible. Thermal effects must be taken into account separately. All characteristics are measured with a $0.1\text{-}\mu\text{F}$ capacitor across the input and a $10\text{-}\mu\text{F}$ capacitor, with equivalent series resistance of less than $0.4\ \Omega$, across the output.

electrical characteristics, $V_I = 14\text{ V}$, $I_O = 10\text{ mA}$, $T_J = 25^\circ\text{C}$ (unless otherwise noted)

PARAMETER	TEST CONDITIONS†	TL750L08 TL751L08			UNIT	
		MIN	TYP	MAX		
Output voltage	$V_I = 9\text{ V to } 26\text{ V}$, $I_O = 0\text{ to } 150\text{ mA}$	$T_J = 25^\circ\text{C}$	7.68	8	8.32	V
		$T_J = 0^\circ\text{C to } 125^\circ\text{C}$	7.6		8.4	
Input regulation voltage	$V_I = 10\text{ V to } 17\text{ V}$		10	20	mV	
	$V_I = 9\text{ V to } 26\text{ V}$		25	50		
Ripple rejection	$V_I = 11\text{ V to } 21\text{ V}$, $f = 120\text{ Hz}$	60	65		dB	
Output regulation voltage	$I_O = 5\text{ mA to } 150\text{ mA}$		40	80	mV	
Dropout voltage	$I_O = 10\text{ mA}$			0.2	V	
	$I_O = 150\text{ mA}$			0.6		
Output noise voltage	$f = 10\text{ Hz to } 100\text{ kHz}$		500		μV	
Input bias current	$I_O = 150\text{ mA}$		10	12	mA	
	$V_I = 9\text{ V to } 26\text{ V}$, $I_O = 10\text{ mA}$, $T_J = 0^\circ\text{C to } 125^\circ\text{C}$		1	2		
	$\text{ENABLE} > 2\text{ V}$			0.5		

† Pulse-testing techniques are used to maintain the junction temperature as close to the ambient temperature as possible. Thermal effects must be taken into account separately. All characteristics are measured with a $0.1\text{-}\mu\text{F}$ capacitor across the input and a $10\text{-}\mu\text{F}$ capacitor, with equivalent series resistance of less than $0.4\ \Omega$, across the output.



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electrical characteristics, $V_I = 14\text{ V}$, $I_O = 10\text{ mA}$, $T_J = 25^\circ\text{C}$ (unless otherwise noted)

PARAMETER	TEST CONDITIONS†		TL750L10 TL751L10			UNIT
			MIN	TYP	MAX	
Output voltage	$V_I = 11\text{ V to }26\text{ V}$, $I_O = 0\text{ to }150\text{ mA}$	$T_J = 25^\circ\text{C}$	9.6	10	10.4	V
		$T_J = 0^\circ\text{C to }125^\circ\text{C}$	9.5		10.5	
Input regulation voltage	$V_I = 12\text{ V to }19\text{ V}$		10	25	mV	
	$V_I = 11\text{ V to }26\text{ V}$		30	60		
Ripple rejection	$V_I = 12\text{ V to }22\text{ V}$, $f = 120\text{ Hz}$		60	65	dB	
Output regulation voltage	$I_O = 5\text{ mA to }150\text{ mA}$		50	100	mV	
Dropout voltage	$I_O = 10\text{ mA}$			0.2	V	
	$I_O = 150\text{ mA}$			0.6		
Output noise voltage	$f = 10\text{ Hz to }100\text{ kHz}$		700		μV	
Input bias current	$I_O = 150\text{ mA}$		10	12	mA	
	$V_I = 11\text{ V to }26\text{ V}$, $I_O = 10\text{ mA}$, $T_J = 0^\circ\text{C to }125^\circ\text{C}$		1	2		
	$\overline{\text{ENABLE}} > 2\text{ V}$			0.5		

† Pulse-testing techniques are used to maintain the junction temperature as close to the ambient temperature as possible. Thermal effects must be taken into account separately. All characteristics are measured with a 0.1- μF capacitor across the input and a 10- μF capacitor, with equivalent series resistance of less than 0.4 Ω , across the output.

electrical characteristics, $V_I = 14\text{ V}$, $I_O = 10\text{ mA}$, $T_J = 25^\circ\text{C}$ (unless otherwise noted)

PARAMETER	TEST CONDITIONS†		TL750L12 TL751L12			UNIT
			MIN	TYP	MAX	
Output voltage	$V_I = 13\text{ V to }26\text{ V}$, $I_O = 0\text{ to }150\text{ mA}$	$T_J = 25^\circ\text{C}$	11.52	12	12.48	V
		$T_J = 0^\circ\text{C to }125^\circ\text{C}$	11.4		12.6	
Input regulation voltage	$V_I = 14\text{ V to }19\text{ V}$		15	30	mV	
	$V_I = 13\text{ V to }26\text{ V}$		20	40		
Ripple rejection	$V_I = 13\text{ V to }23\text{ V}$, $f = 120\text{ Hz}$		50	55	dB	
Output regulation voltage	$I_O = 5\text{ mA to }150\text{ mA}$		50	120	mV	
Dropout voltage	$I_O = 10\text{ mA}$			0.2	V	
	$I_O = 150\text{ mA}$			0.6		
Output noise voltage	$f = 10\text{ Hz to }100\text{ kHz}$		700		μV	
Input bias current	$I_O = 150\text{ mA}$		10	12	mA	
	$V_I = 13\text{ V to }26\text{ V}$, $I_O = 10\text{ mA}$, $T_J = 0^\circ\text{C to }125^\circ\text{C}$		1	2		
	$\overline{\text{ENABLE}} > 2\text{ V}$			0.5		

† Pulse-testing techniques are used to maintain the junction temperature as close to the ambient temperature as possible. Thermal effects must be taken into account separately. All characteristics are measured with a 0.1- μF capacitor across the input and a 10- μF capacitor, with equivalent series resistance of less than 0.4 Ω , across the output.



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TYPICAL CHARACTERISTICS

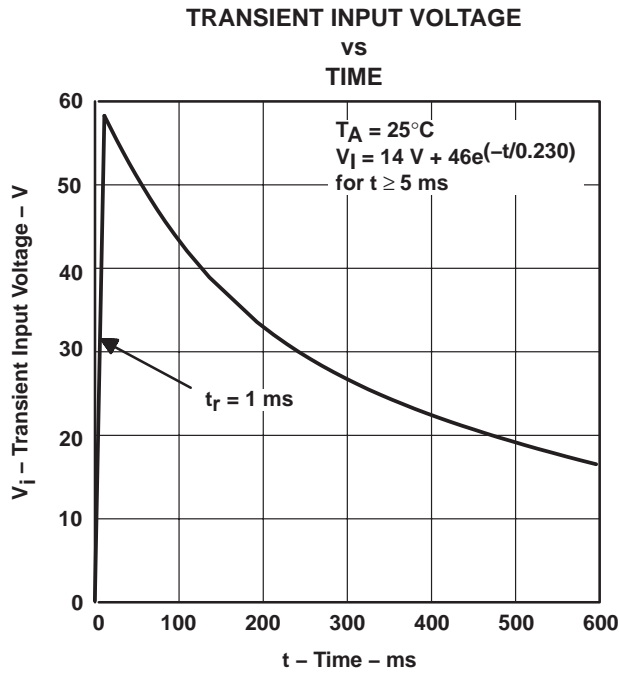


Figure 1

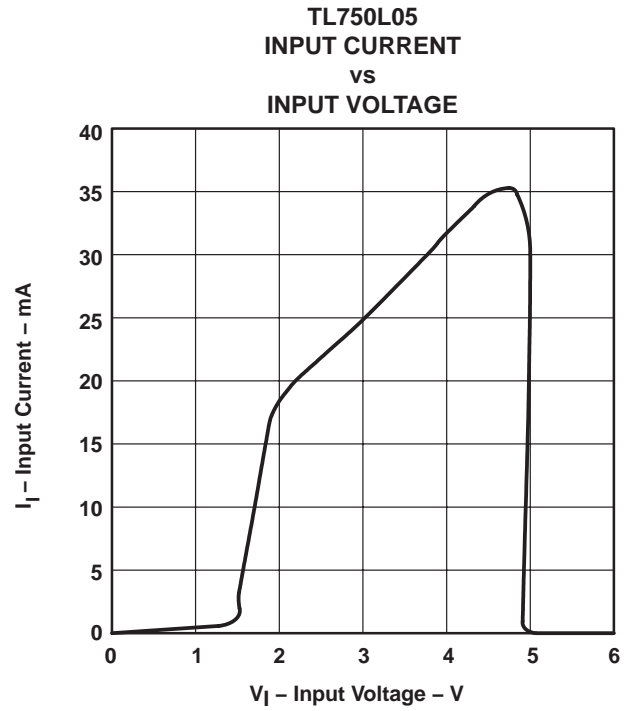


Figure 2

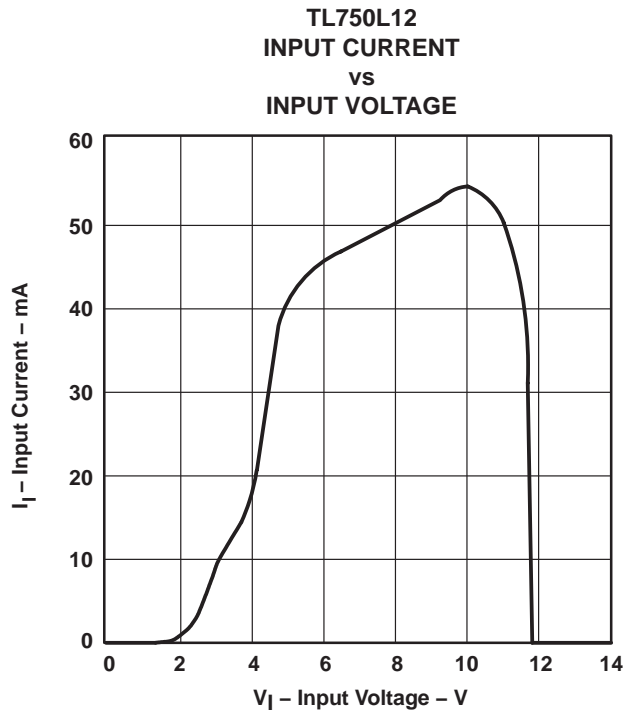


Figure 3

TYPICAL CHARACTERISTICS

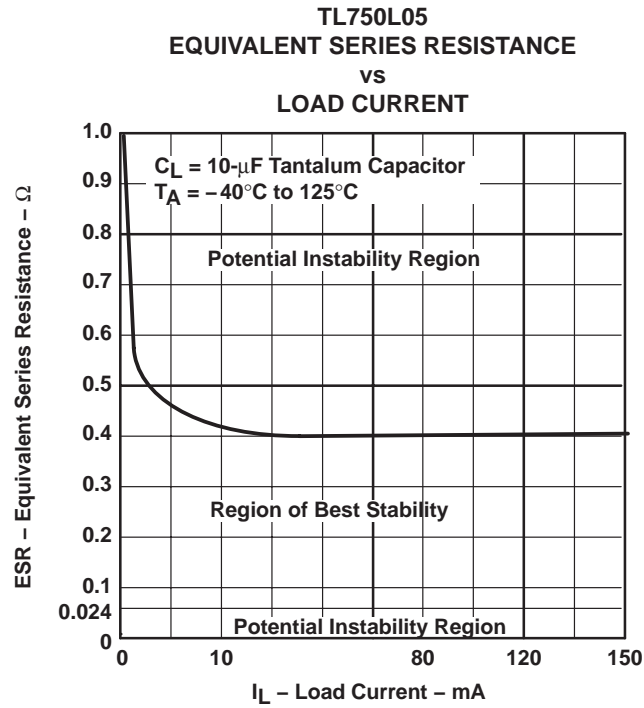


Figure 4

PACKAGING INFORMATION

Orderable Device	Status ⁽¹⁾	Package Type	Package Drawing	Pins	Package Qty	Eco Plan ⁽²⁾	Lead/Ball Finish	MSL Peak Temp ⁽³⁾
5962-9166901Q2A	OBSOLETE	LCCC	FK	20		TBD	Call TI	Call TI
5962-9166901QPA	OBSOLETE	CDIP	JG	8		TBD	Call TI	Call TI
TL750L05CD	ACTIVE	SOIC	D	8	75	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-2-260C-1YEAR
TL750L05CDE4	ACTIVE	SOIC	D	8	75	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-2-260C-1YEAR
TL750L05CDR	ACTIVE	SOIC	D	8	2500	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-2-260C-1YEAR
TL750L05CDRE4	ACTIVE	SOIC	D	8	2500	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-2-260C-1YEAR
TL750L05CKC	ACTIVE	TO-220	KC	3	50	TBD	CU SNPB	Level-NC-NC-NC
TL750L05CKTER	ACTIVE	PFM	KTE	3	2000	TBD	CU SNPB	Level-1-220C-UNLIM
TL750L05CLP	ACTIVE	TO-92	LP	3	1000	TBD	CU SNPB	Level-NC-NC-NC
TL750L05CLPM	OBSOLETE	TO-92	LP	3		TBD	Call TI	Call TI
TL750L05CLPR	ACTIVE	TO-92	LP	3	2000	TBD	CU SNPB	Level-NC-NC-NC
TL750L05CP	OBSOLETE	PDIP	P	8		TBD	Call TI	Call TI
TL750L05QD	OBSOLETE	SOIC	D	8		TBD	Call TI	Call TI
TL750L05QDR	OBSOLETE	SOIC	D	8		TBD	Call TI	Call TI
TL750L05QKC	OBSOLETE	TO-220	KC	3		TBD	Call TI	Call TI
TL750L05QLP	OBSOLETE	TO-92	LP	3		TBD	Call TI	Call TI
TL750L05QP	OBSOLETE	PDIP	P	8		TBD	Call TI	Call TI
TL750L08CD	ACTIVE	SOIC	D	8	75	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-2-260C-1YEAR
TL750L08CDE4	ACTIVE	SOIC	D	8	75	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-2-260C-1YEAR
TL750L08CDR	ACTIVE	SOIC	D	8	2500	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-2-260C-1YEAR
TL750L08CDRE4	ACTIVE	SOIC	D	8	2500	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-2-260C-1YEAR
TL750L08CKC	OBSOLETE	TO-220	KC	3		TBD	Call TI	Call TI
TL750L08CLP	ACTIVE	TO-92	LP	3	1000	TBD	CU SNPB	Level-NC-NC-NC
TL750L08CP	OBSOLETE	PDIP	P	8		TBD	Call TI	Call TI
TL750L08QD	OBSOLETE	SOIC	D	8		TBD	Call TI	Call TI
TL750L08QDR	OBSOLETE	SOIC	D	8		TBD	Call TI	Call TI
TL750L08QKC	OBSOLETE	TO-220	KC	3		TBD	Call TI	Call TI
TL750L08QLP	OBSOLETE	TO-92	LP	3		TBD	Call TI	Call TI
TL750L10CD	ACTIVE	SOIC	D	8	75	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-2-260C-1YEAR
TL750L10CDE4	ACTIVE	SOIC	D	8	75	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-2-260C-1YEAR
TL750L10CDR	ACTIVE	SOIC	D	8	2500	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-2-260C-1YEAR
TL750L10CDRE4	ACTIVE	SOIC	D	8	2500	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-2-260C-1YEAR
TL750L10CKC	OBSOLETE	TO-220	KC	3		TBD	Call TI	Call TI
TL750L10CLP	ACTIVE	TO-92	LP	3	1000	TBD	CU SNPB	Level-NC-NC-NC

Orderable Device	Status ⁽¹⁾	Package Type	Package Drawing	Pins	Package Qty	Eco Plan ⁽²⁾	Lead/Ball Finish	MSL Peak Temp ⁽³⁾
TL750L10CLPR	ACTIVE	TO-92	LP	3	2000	TBD	CU SNPB	Level-NC-NC-NC
TL750L10CP	OBSOLETE	PDIP	P	8		TBD	Call TI	Call TI
TL750L10QD	OBSOLETE	SOIC	D	8		TBD	Call TI	Call TI
TL750L10QDR	OBSOLETE	SOIC	D	8		TBD	Call TI	Call TI
TL750L10QKC	OBSOLETE	TO-220	KC	3		TBD	Call TI	Call TI
TL750L10QLP	OBSOLETE	TO-92	LP	3		TBD	Call TI	Call TI
TL750L10QP	OBSOLETE	PDIP	P	8		TBD	Call TI	Call TI
TL750L12CD	ACTIVE	SOIC	D	8	75	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-2-260C-1YEAR
TL750L12CDE4	ACTIVE	SOIC	D	8	75	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-2-260C-1YEAR
TL750L12CDR	ACTIVE	SOIC	D	8	2500	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-2-260C-1YEAR
TL750L12CDRE4	ACTIVE	SOIC	D	8	2500	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-2-260C-1YEAR
TL750L12CKC	OBSOLETE	TO-220	KC	3		TBD	Call TI	Call TI
TL750L12CLP	ACTIVE	TO-92	LP	3	1000	TBD	CU SNPB	Level-NC-NC-NC
TL750L12CP	OBSOLETE	PDIP	P	8		TBD	Call TI	Call TI
TL750L12QD	OBSOLETE	SOIC	D	8		TBD	Call TI	Call TI
TL750L12QDR	OBSOLETE	SOIC	D	8		TBD	Call TI	Call TI
TL750L12QKC	OBSOLETE	TO-220	KC	3		TBD	Call TI	Call TI
TL750L12QLP	OBSOLETE	TO-92	LP	3		TBD	Call TI	Call TI
TL750L12QP	OBSOLETE	SOIC	D	8		TBD	Call TI	Call TI
TL751L05CD	ACTIVE	SOIC	D	8	75	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM
TL751L05CDE4	ACTIVE	SOIC	D	8	75	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM
TL751L05CDR	ACTIVE	SOIC	D	8	2500	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM
TL751L05CDRE4	ACTIVE	SOIC	D	8	2500	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM
TL751L05CP	OBSOLETE	PDIP	P	8		TBD	Call TI	Call TI
TL751L05MFKB	OBSOLETE	LCCC	FK	20		TBD	Call TI	Call TI
TL751L05MJGB	OBSOLETE	CDIP	JG	8		TBD	Call TI	Call TI
TL751L05QD	OBSOLETE	SOIC	D	8		TBD	Call TI	Call TI
TL751L05QDR	OBSOLETE	SOIC	D	8		TBD	Call TI	Call TI
TL751L05QP	OBSOLETE	PDIP	P	8		TBD	Call TI	Call TI
TL751L08CD	OBSOLETE	SOIC	D	8		TBD	Call TI	Call TI
TL751L08CP	OBSOLETE	PDIP	P	8		TBD	Call TI	Call TI
TL751L08QD	OBSOLETE	SOIC	D	8		TBD	Call TI	Call TI
TL751L08QDR	OBSOLETE	SOIC	D	8		TBD	Call TI	Call TI
TL751L10CD	ACTIVE	SOIC	D	8	75	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-2-260C-1YEAR
TL751L10CDE4	ACTIVE	SOIC	D	8	75	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-2-260C-1YEAR
TL751L10CDR	ACTIVE	SOIC	D	8	2500	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-2-260C-1YEAR

Orderable Device	Status ⁽¹⁾	Package Type	Package Drawing	Pins	Package Qty	Eco Plan ⁽²⁾	Lead/Ball Finish	MSL Peak Temp ⁽³⁾
TL751L10CDRE4	ACTIVE	SOIC	D	8	2500	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-2-260C-1YEAR
TL751L10CP	ACTIVE	PDIP	P	8	50	Pb-Free (RoHS)	CU NIPDAU	Level-NC-NC-NC
TL751L10CPE4	ACTIVE	PDIP	P	8	50	Pb-Free (RoHS)	CU NIPDAU	Level-NC-NC-NC
TL751L10QD	OBSOLETE	SOIC	D	8		TBD	Call TI	Call TI
TL751L10QP	OBSOLETE	PDIP	P	8		TBD	Call TI	Call TI
TL751L12CD	ACTIVE	SOIC	D	8	75	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-2-260C-1YEAR
TL751L12CDE4	ACTIVE	SOIC	D	8	75	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-2-260C-1YEAR
TL751L12CDR	ACTIVE	SOIC	D	8	2500	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-2-260C-1YEAR
TL751L12CDRE4	ACTIVE	SOIC	D	8	2500	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-2-260C-1YEAR
TL751L12CP	OBSOLETE	PDIP	P	8		TBD	Call TI	Call TI
TL751L12MFKB	OBSOLETE	LCCC	FK	20		TBD	Call TI	Call TI
TL751L12MJGB	OBSOLETE	CDIP	JG	8		TBD	Call TI	Call TI
TL751L12QD	OBSOLETE	SOIC	D	8		TBD	Call TI	Call TI
TL751L12QDR	OBSOLETE	SOIC	D	8		TBD	Call TI	Call TI
TL751L12QP	OBSOLETE	PDIP	P	8		TBD	Call TI	Call TI

⁽¹⁾ The marketing status values are defined as follows:

ACTIVE: Product device recommended for new designs.

LIFEBUY: TI has announced that the device will be discontinued, and a lifetime-buy period is in effect.

NRND: Not recommended for new designs. Device is in production to support existing customers, but TI does not recommend using this part in a new design.

PREVIEW: Device has been announced but is not in production. Samples may or may not be available.

OBSOLETE: TI has discontinued the production of the device.

⁽²⁾ Eco Plan - The planned eco-friendly classification: Pb-Free (RoHS) or Green (RoHS & no Sb/Br) - please check <http://www.ti.com/productcontent> for the latest availability information and additional product content details.

TBD: The Pb-Free/Green conversion plan has not been defined.

Pb-Free (RoHS): TI's terms "Lead-Free" or "Pb-Free" mean semiconductor products that are compatible with the current RoHS requirements for all 6 substances, including the requirement that lead not exceed 0.1% by weight in homogeneous materials. Where designed to be soldered at high temperatures, TI Pb-Free products are suitable for use in specified lead-free processes.

Green (RoHS & no Sb/Br): TI defines "Green" to mean Pb-Free (RoHS compatible), and free of Bromine (Br) and Antimony (Sb) based flame retardants (Br or Sb do not exceed 0.1% by weight in homogeneous material)

⁽³⁾ MSL, Peak Temp. -- The Moisture Sensitivity Level rating according to the JEDEC industry standard classifications, and peak solder temperature.

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JG (R-GDIP-T8)

CERAMIC DUAL-IN-LINE



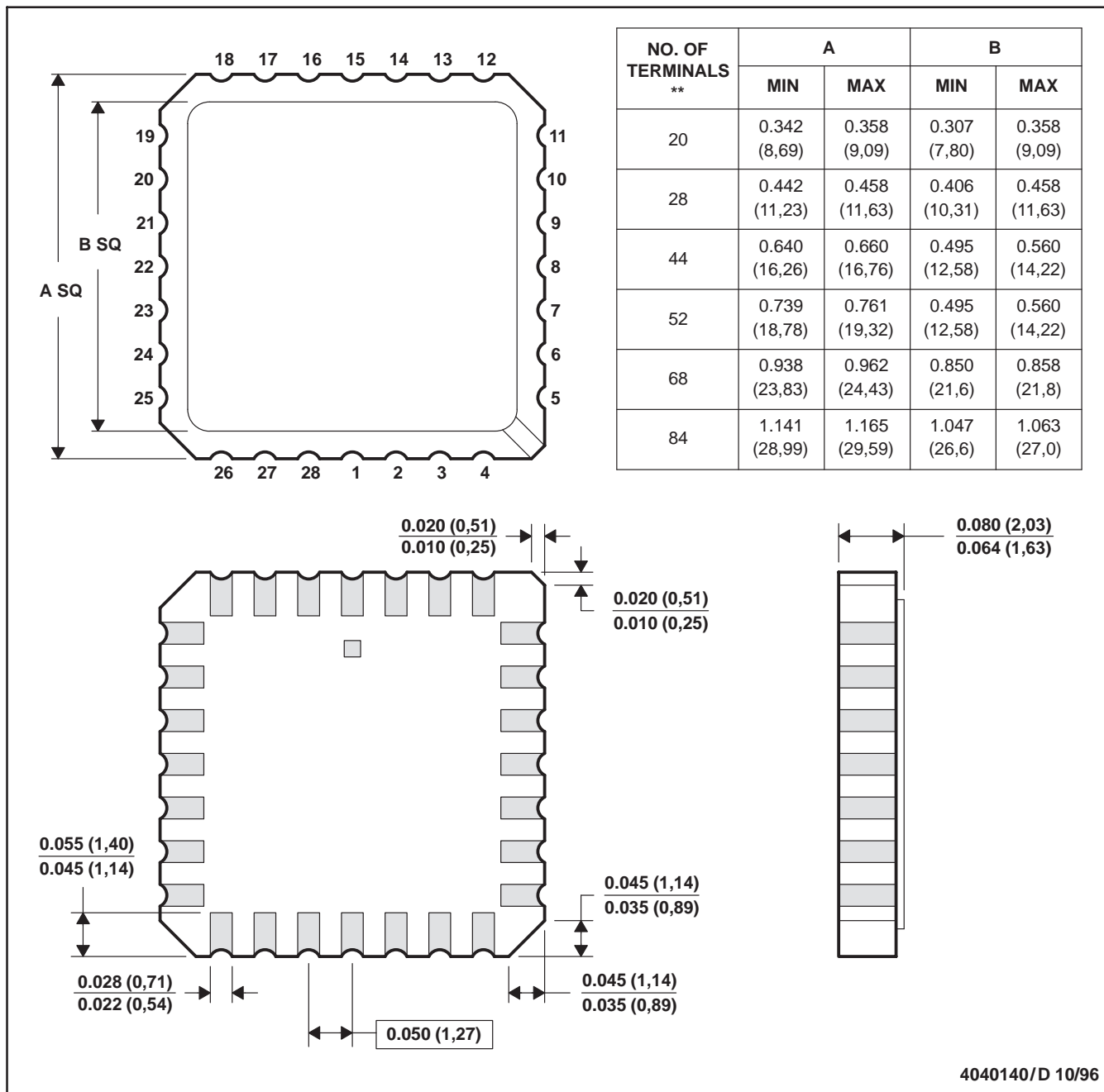
4040107/C 08/96

- NOTES: A. All linear dimensions are in inches (millimeters).
 B. This drawing is subject to change without notice.
 C. This package can be hermetically sealed with a ceramic lid using glass frit.
 D. Index point is provided on cap for terminal identification.
 E. Falls within MIL STD 1835 GDIP1-T8

FK (S-CQCC-N**)

LEADLESS CERAMIC CHIP CARRIER

28 TERMINAL SHOWN



- NOTES:
- A. All linear dimensions are in inches (millimeters).
 - B. This drawing is subject to change without notice.
 - C. This package can be hermetically sealed with a metal lid.
 - D. The terminals are gold plated.
 - E. Falls within JEDEC MS-004

P (R-PDIP-T8)

PLASTIC DUAL-IN-LINE



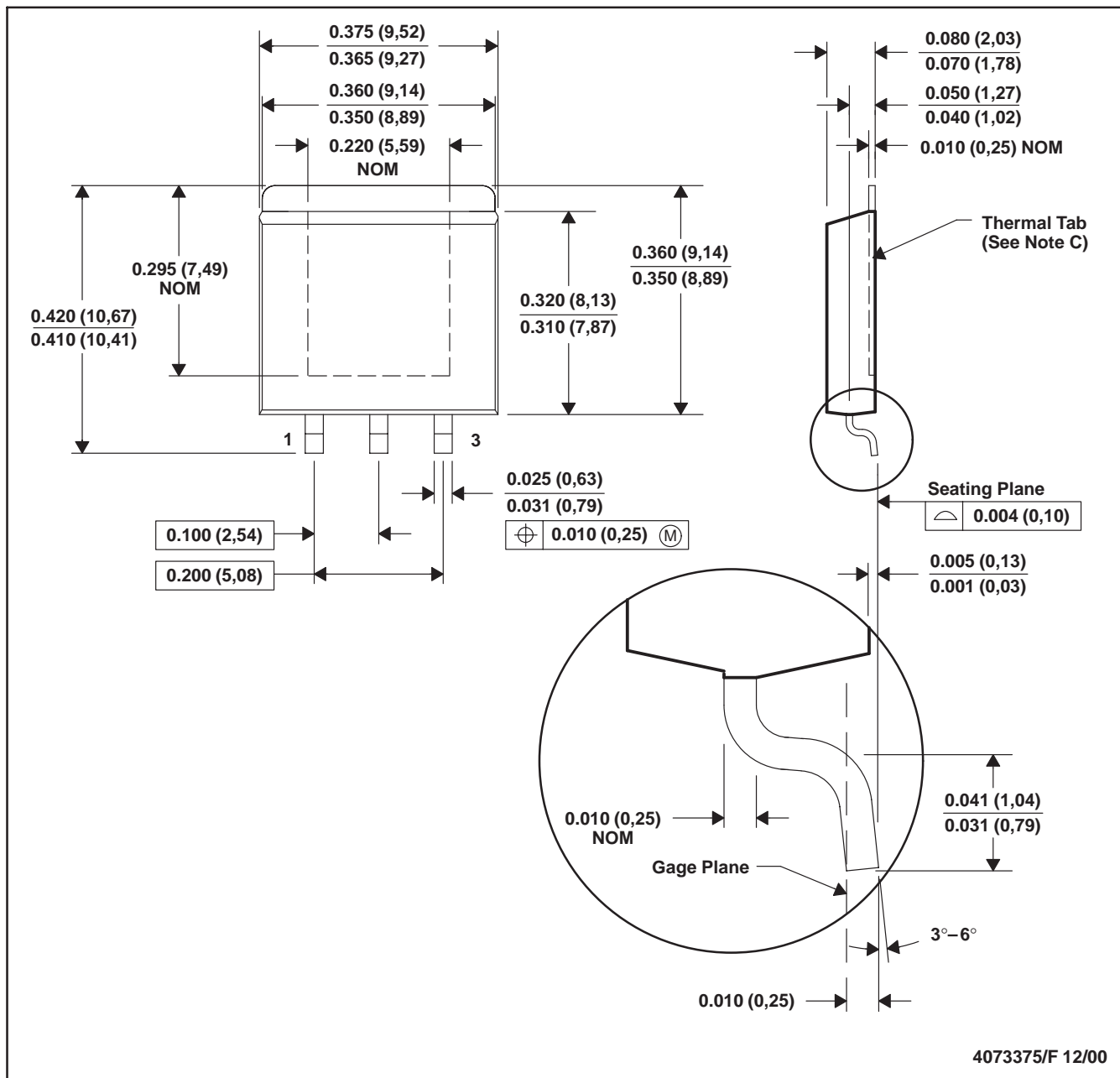
- NOTES: A. All linear dimensions are in inches (millimeters).
 B. This drawing is subject to change without notice.
 C. Falls within JEDEC MS-001

For the latest package information, go to http://www.ti.com/sc/docs/package/pkg_info.htm



KTE (R-PSFM-G3)

PowerFLEX™ PLASTIC FLANGE-MOUNT



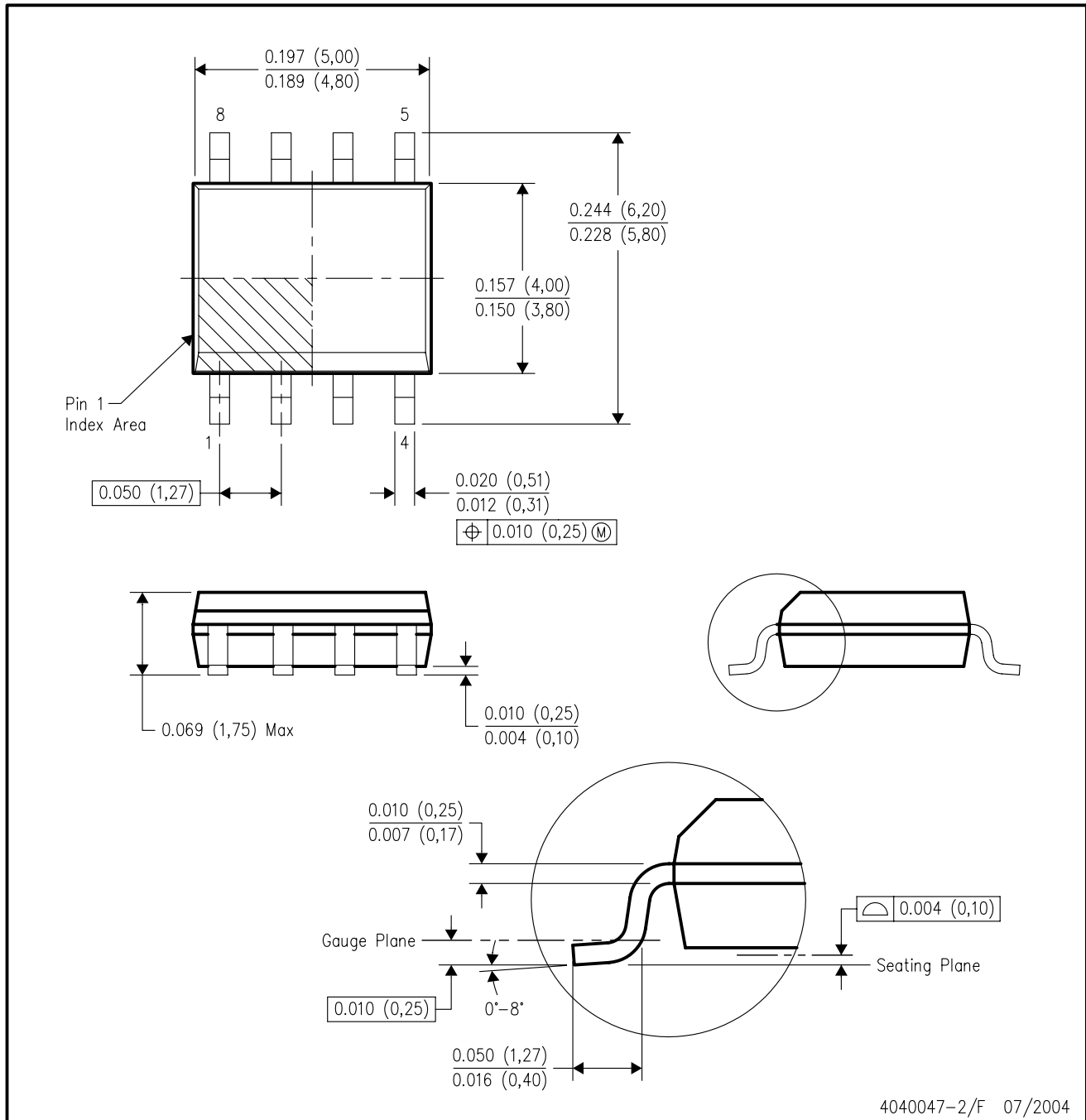
- NOTES: A. All linear dimensions are in inches (millimeters).
 B. This drawing is subject to change without notice.
 C. The center lead is in electrical contact with the thermal tab.
 D. Dimensions do not include mold protrusions, not to exceed 0.006 (0,15).
 E. Falls within JEDEC MO-169

PowerFLEX is a trademark of Texas Instruments.



D (R-PDSO-G8)

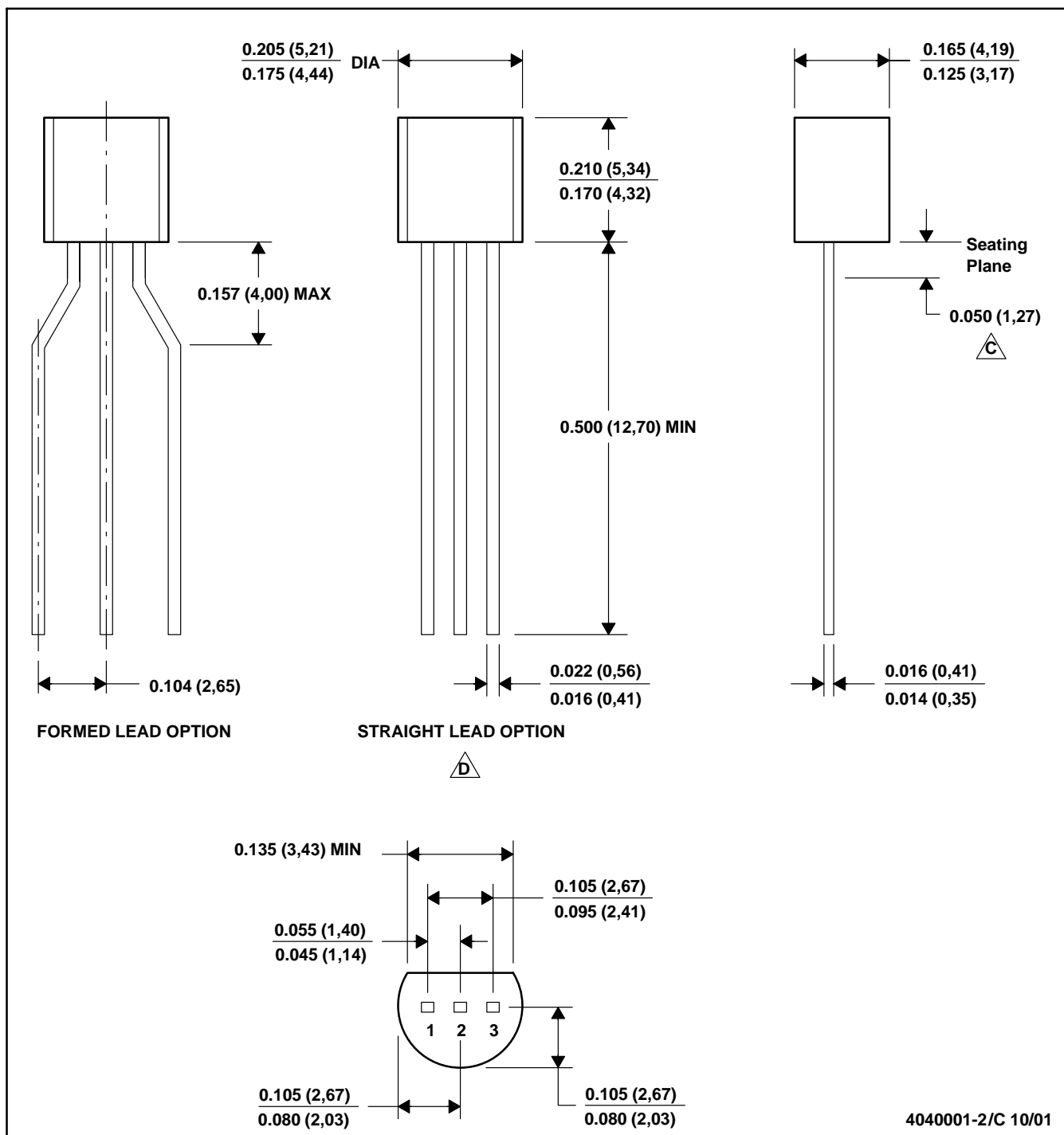
PLASTIC SMALL-OUTLINE PACKAGE



- NOTES:
- A. All linear dimensions are in inches (millimeters).
 - B. This drawing is subject to change without notice.
 - C. Body dimensions do not include mold flash or protrusion not to exceed 0.006 (0,15).
 - D. Falls within JEDEC MS-012 variation AA.

LP (O-PBCY-W3)

PLASTIC CYLINDRICAL PACKAGE



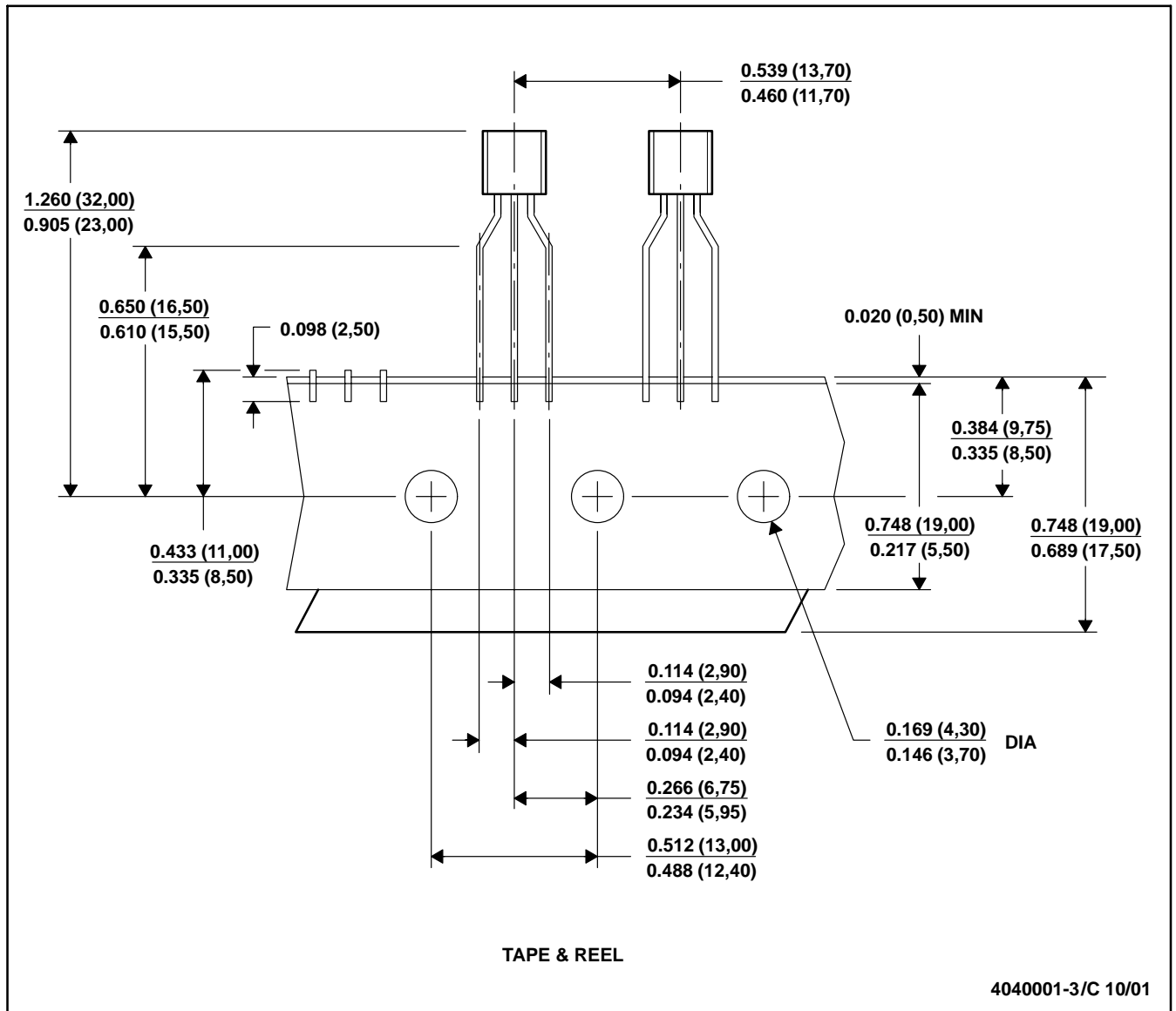
- NOTES:
- A. All linear dimensions are in inches (millimeters).
 - B. This drawing is subject to change without notice.
 - C. Lead dimensions are not controlled within this area
 - D. Falls within JEDEC TO-226 Variation AA (TO-226 replaces TO-92)
 - E. Shipping Method:
 Straight lead option available in bulk pack only.
 Formed lead option available in tape & reel or ammo pack.

MECHANICAL DATA

MSOT002A – OCTOBER 1994 – REVISED NOVEMBER 2001

LP (O-PBCY-W3)

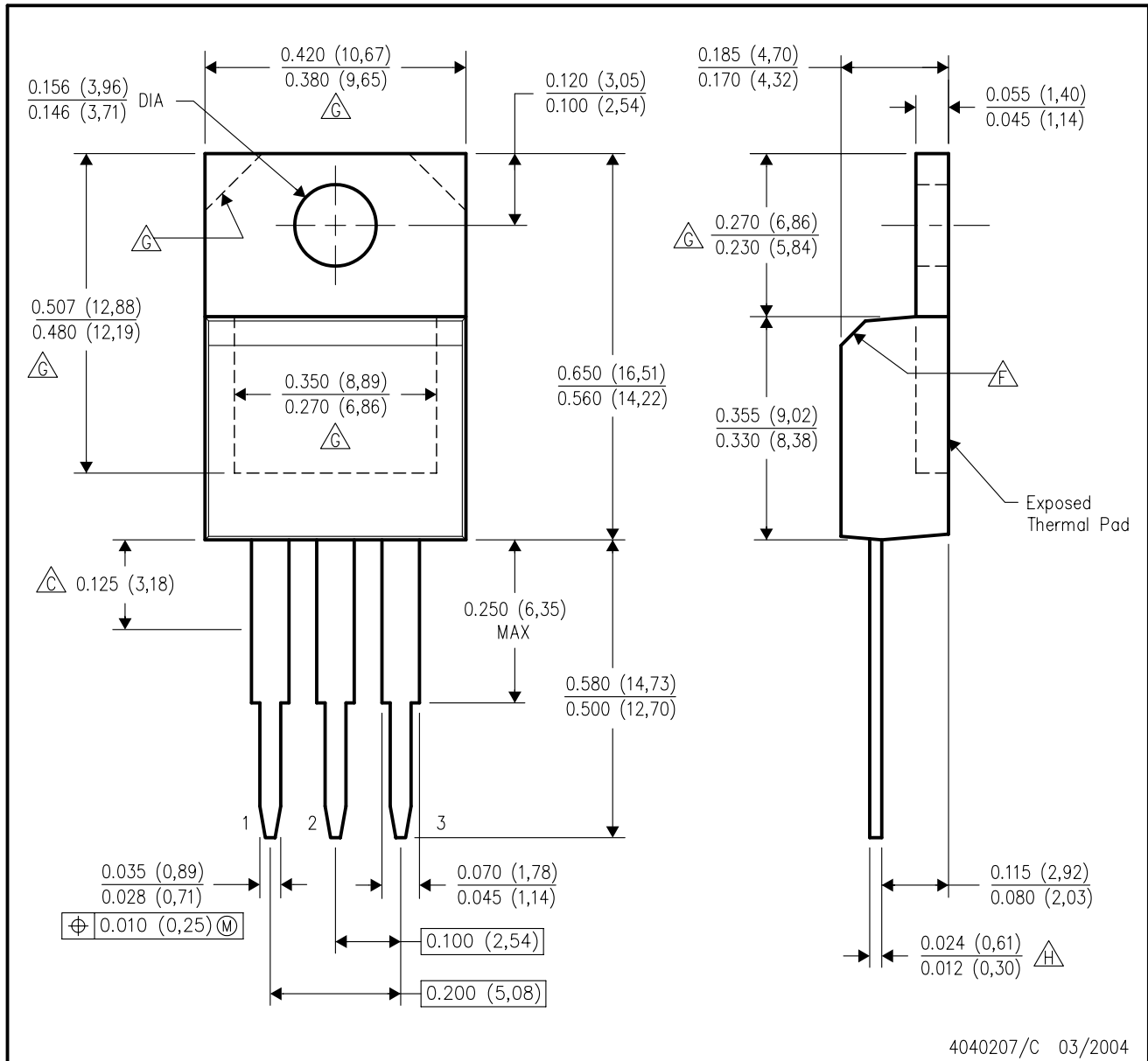
PLASTIC CYLINDRICAL PACKAGE



- NOTES:
- All linear dimensions are in inches (millimeters).
 - This drawing is subject to change without notice.
 - Tape and Reel information for the Format Lead Option package.

KC (R-PSFM-T3)

PLASTIC FLANGE-MOUNT PACKAGE



- NOTES:
- A. All linear dimensions are in inches (millimeters).
 - B. This drawing is subject to change without notice.
 - $\triangle C$ Lead dimensions are not controlled within this area.
 - D. All lead dimensions apply before solder dip.
 - E. The center lead is in electrical contact with the mounting tab.
 - $\triangle F$ The chamfer is optional.
 - $\triangle G$ Thermal pad contour optional within these dimensions.
 - $\triangle H$ Falls within JEDEC TO-220 variation AB, except minimum lead thickness.

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