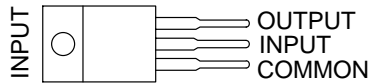


# μA79M00 SERIES NEGATIVE-VOLTAGE REGULATORS

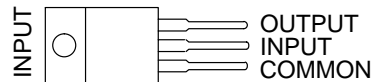
SLVS060J – JUNE 1976 – REVISED MAY 2003

- 3-Terminal Regulators
- Output Current Up To 500 mA
- No External Components
- High Power-Dissipation Capability
- Internal Short-Circuit Current Limiting
- Output Transistor Safe-Area Compensation

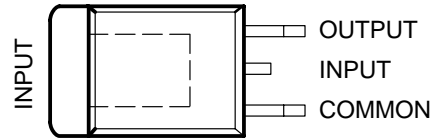
μA79M05 . . . KC (TO-220) PACKAGE  
(TOP VIEW)



μA79M05 . . . KCS (TO-220) PACKAGE  
(TOP VIEW)



μA79M05, μA79M08 . . . KTP PACKAGE  
(TOP VIEW)



## description/ordering information

This series of fixed-negative-voltage integrated-circuit voltage regulators is designed to complement the μA78M00 series in a wide range of applications. These applications include on-card regulation for elimination of noise and distribution problems associated with single-point regulation. Each of these regulators delivers up to 500 mA of output current. The internal current-limiting and thermal-shutdown features of these regulators essentially make them immune to overload. In addition to use as fixed-voltage regulators, these devices can be used with external components to obtain adjustable output voltages and currents, and also as the power-pass element in precision regulators.

### ORDERING INFORMATION

T <sub>J</sub>	V <sub>O(NOM)</sub> (V)	PACKAGE†		ORDERABLE PART NUMBER	TOP-SIDE MARKING
0°C to 125°C	–5	Power Flex (KTP)	Reel of 3000	μA79M05CKTPR	μA79M05C
		TO-220 (KC)	Tube of 50	μA79M05CKC	μA79M05C
		TO-220, short shoulder (KCS)	Tube of 20	μA79M05CKCS	
	–8	Power Flex (KTP)	Reel of 3000	μA79M08CKTPR	μA79M08C

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



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PRODUCTION DATA information is current as of publication date. Products conform to specifications per the terms of Texas Instruments standard warranty. Production processing does not necessarily include testing of all parameters.

**TEXAS  
INSTRUMENTS**

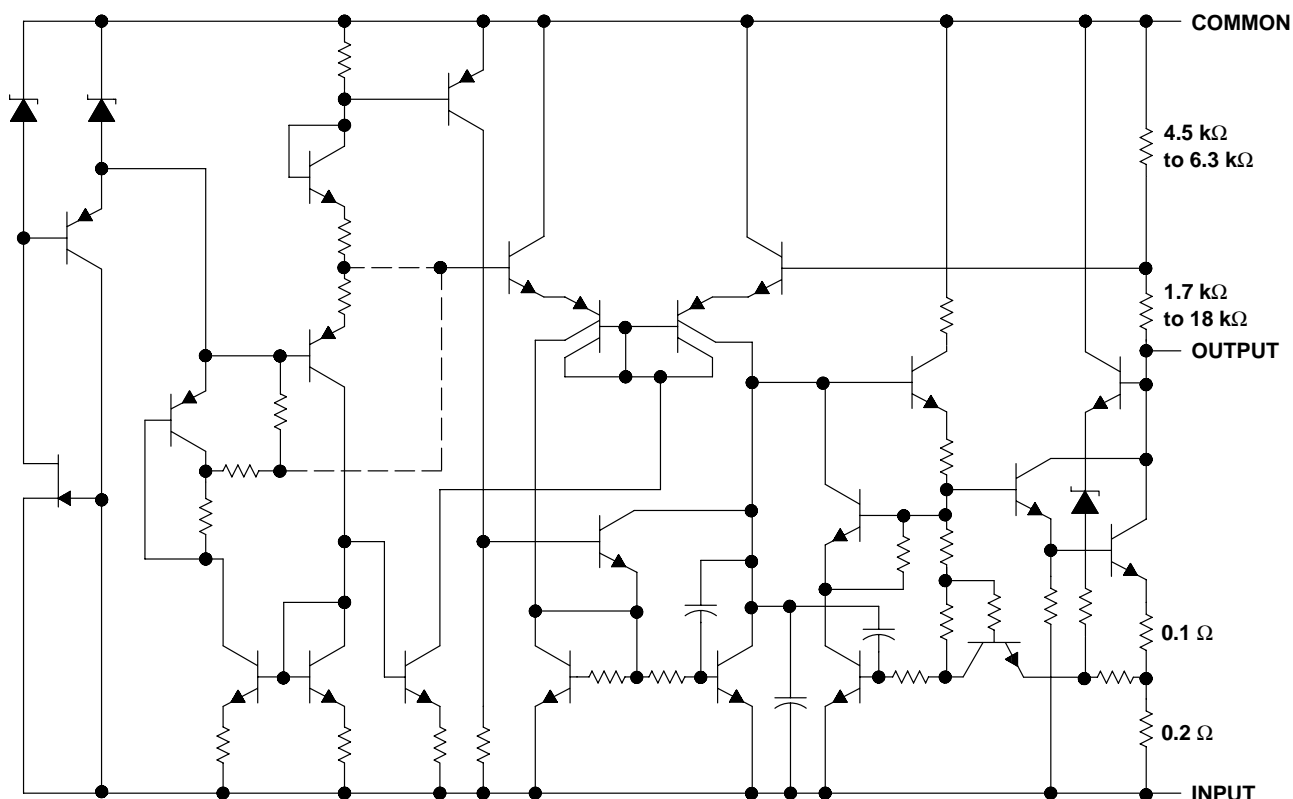
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# μA79M00 SERIES NEGATIVE-VOLTAGE REGULATORS

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## schematic



Resistor values shown are nominal.

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

Input voltage, $V_I$ .....	35 V
Operating virtual junction temperature, $T_J$ .....	150°C
Lead temperature 1,6 mm (1/16 inch) from case 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.

## package thermal data (see Note 1)

PACKAGE	BOARD	$\theta_{JC}$	$\theta_{JA}$
POWER-FLEX (KTP)	High K, JESD 51-5	19°C/W	28°C/W
TO-220 (KC/KCS)	High K, JESD 51-5	3°C/W	19°C/W

NOTE 1: Maximum power dissipation is a function of  $T_J(\max)$ ,  $\theta_{JA}$ , and  $T_A$ . The maximum allowable power dissipation at any allowable ambient temperature is  $P_D = (T_J(\max) - T_A)/\theta_{JA}$ . Operating at the absolute maximum  $T_J$  of 150°C can affect reliability.



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# μA79M00 SERIES NEGATIVE-VOLTAGE REGULATORS

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## recommended operating conditions

		MIN	MAX	UNIT	
V <sub>I</sub>	Input voltage	μA79M05C	-7	-25	V
		μA79M08C	-10.5	-25	
I <sub>O</sub>	Output current		500	mA	
T <sub>J</sub>	Operating virtual junction temperature	0	125	°C	

## electrical characteristics at specified virtual junction temperature, V<sub>I</sub> = -10 V, I<sub>O</sub> = 350 mA, T<sub>J</sub> = 25°C (unless otherwise noted)

PARAMETER	TEST CONDITIONS†	μA79M05C			UNIT
		MIN	TYP	MAX	
Output voltage	V <sub>I</sub> = -7 V to -25 V, I <sub>O</sub> = 5 mA to 350 mA	-4.8	-5	-5.2	V
	T <sub>J</sub> = 0°C to 125°C	-4.75		-5.25	
Input voltage regulation	V <sub>I</sub> = -7 V to -25 V		7	50	mV
	V <sub>I</sub> = -8 V to -18 V		3	30	
Ripple rejection	V <sub>I</sub> = -8 V to -18 V, f = 120 Hz, I <sub>O</sub> = 100 mA, T <sub>J</sub> = 0°C to 125°C		50		dB
		I <sub>O</sub> = 300 mA	54	60	
Output voltage regulation	I <sub>O</sub> = 5 mA to 500 mA		75	100	mV
	I <sub>O</sub> = 5 mA to 350 mA		50		
Temperature coefficient of output voltage	I <sub>O</sub> = 5 mA, T <sub>J</sub> = 0°C to 125°C		-0.4		mV/°C
Output noise voltage	f = 10 Hz to 100 kHz		125		μV
Dropout voltage			1.1		V
Bias current			1	2	mA
Bias current change	V <sub>I</sub> = -8 V to -18 V, T <sub>J</sub> = 0°C to 125°C			0.4	mA
	I <sub>O</sub> = 5 mA to 350 mA, T <sub>J</sub> = 0°C to 125°C			0.4	
Short-circuit output current	V <sub>I</sub> = -30 V		140		mA
Peak output current			0.65		A

† Pulse-testing techniques maintain T<sub>J</sub> as close to T<sub>A</sub> as possible. Thermal effects must be taken into account separately. All characteristics are measured with a 2-μF capacitor across the input and a 1-μF capacitor across the output.

# μA79M00 SERIES NEGATIVE-VOLTAGE REGULATORS

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electrical characteristics at specified virtual junction temperature,  $V_I = -19\text{ V}$ ,  $I_O = 350\text{ mA}$ ,  $T_J = 25^\circ\text{C}$  (unless otherwise noted)

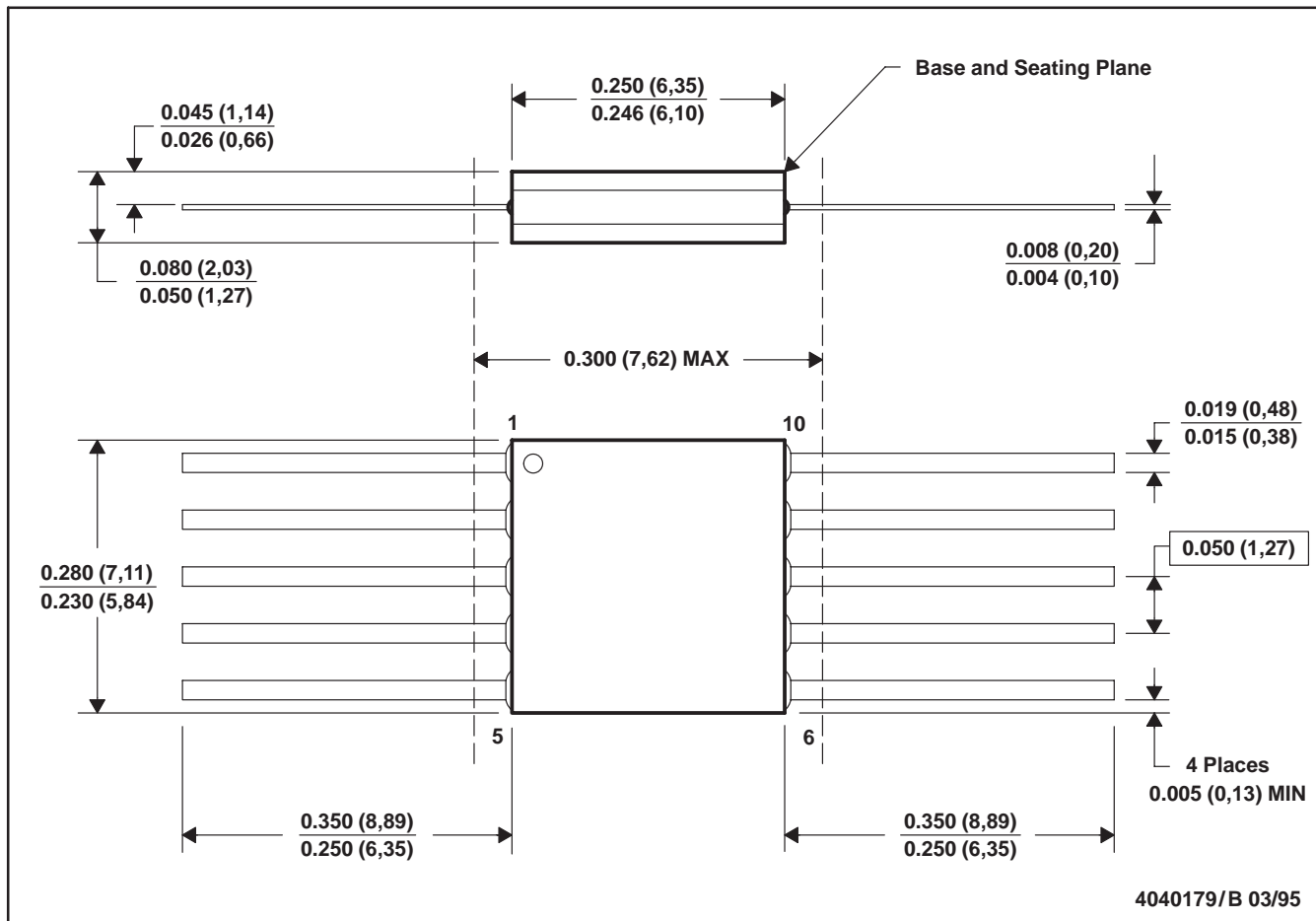
PARAMETER	TEST CONDITIONS†	μA79M08C			UNIT
		MIN	TYP	MAX	
Output voltage	$V_I = -10.5\text{ V to }-25\text{ V}$ , $I_O = 5\text{ mA to }350\text{ mA}$	-7.7	-8	-8.3	V
	$T_J = 0^\circ\text{C to }125^\circ\text{C}$	-7.6		-8.4	
Input voltage regulation	$V_I = -10.5\text{ V to }-25\text{ V}$		8	80	mV
	$V_I = -11\text{ V to }-21\text{ V}$		4	50	
Ripple rejection	$V_I = -11.5\text{ V to }-21.5\text{ V}$ , $f = 120\text{ Hz}$	$I_O = 100\text{ mA}$ , $I_O = 300\text{ mA}$	$T_J = 0^\circ\text{C to }125^\circ\text{C}$	50	dB
				54 59	
Output voltage regulation	$I_O = 5\text{ mA to }500\text{ mA}$		90	160	mV
	$I_O = 5\text{ mA to }350\text{ mA}$		60		
Temperature coefficient of output voltage	$I_O = 5\text{ mA}$ , $T_J = 0^\circ\text{C to }125^\circ\text{C}$		-0.6		mV/°C
Output noise voltage	$f = 10\text{ Hz to }100\text{ kHz}$		200		μV
Dropout voltage	$I_O = 5\text{ mA}$		1.1		V
Bias current			1	2	mA
Bias current change	$V_I = -10.5\text{ V to }-25\text{ V}$ , $T_J = 0^\circ\text{C to }125^\circ\text{C}$			0.4	mA
	$I_O = 5\text{ mA to }350\text{ mA}$ , $T_J = 0^\circ\text{C to }125^\circ\text{C}$			0.4	
Short-circuit output current	$V_I = -30\text{ V}$		140		mA
Peak output current			0.65		A

† Pulse-testing techniques maintain  $T_J$  as close to  $T_A$  as possible. Thermal effects must be taken into account separately. All characteristics are measured with a 2-μF capacitor across the input and a 1-μF capacitor across the output.



U (S-GDFP-F10)

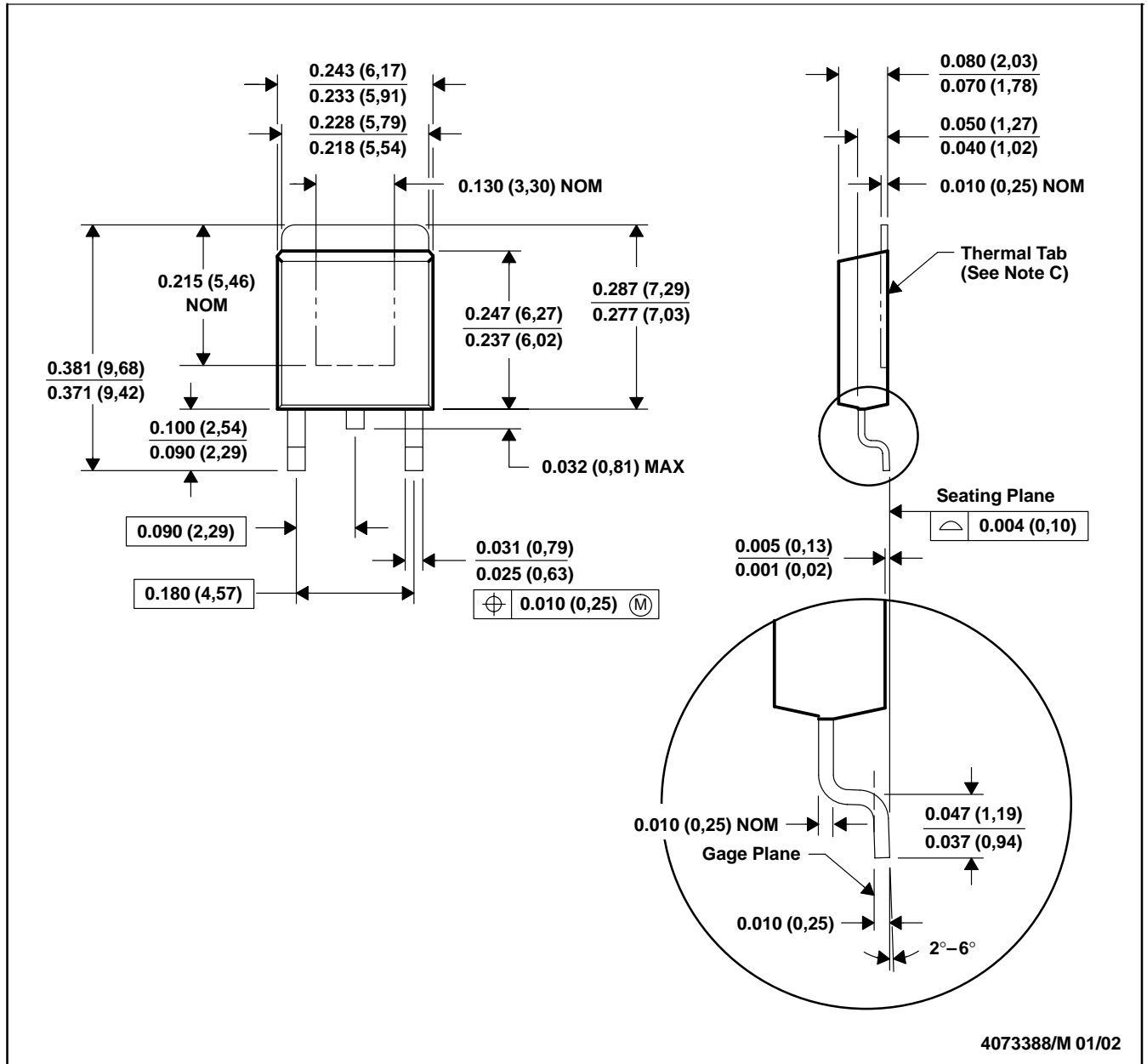
CERAMIC DUAL FLATPACK



- 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 only.
  - E. Falls within MIL STD 1835 GDFP1-F10 and JEDEC MO-092AA

KTP (R-PSFM-G2)

PowerFLEX™ PLASTIC FLANGE-MOUNT PACKAGE



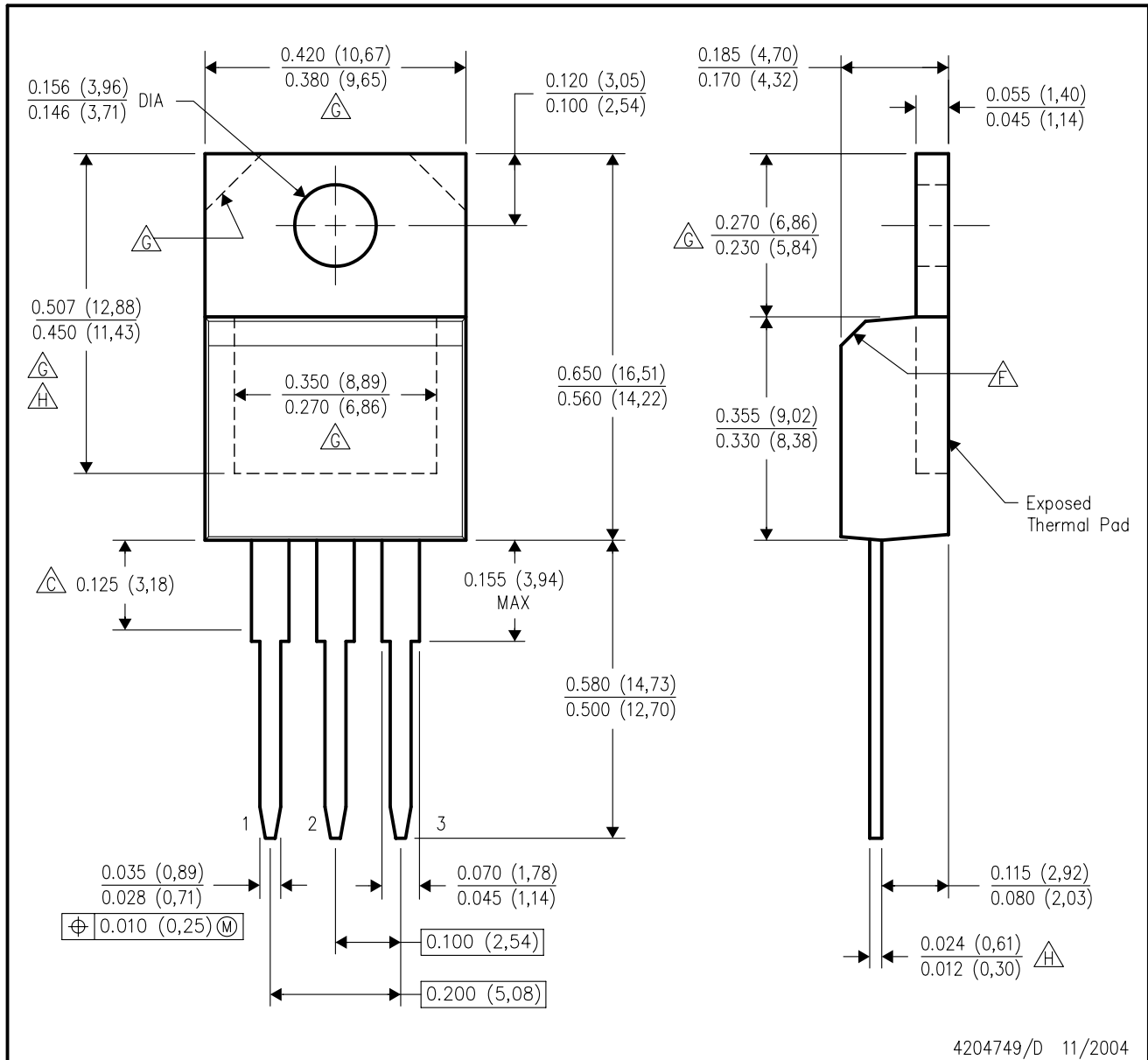
- NOTES: A. All linear dimensions are in inches (millimeters).  
 B. This drawing is subject to change without notice.  
 C. The center lead is in electrical contact with the thermal tab.  
 D. Dimensions do not include mold protrusions, not to exceed 0.006 (0,15).  
 E. Falls within JEDEC TO-252 variation AC.

PowerFLEX is a trademark of Texas Instruments.



KCS (R-PSFM-T3)

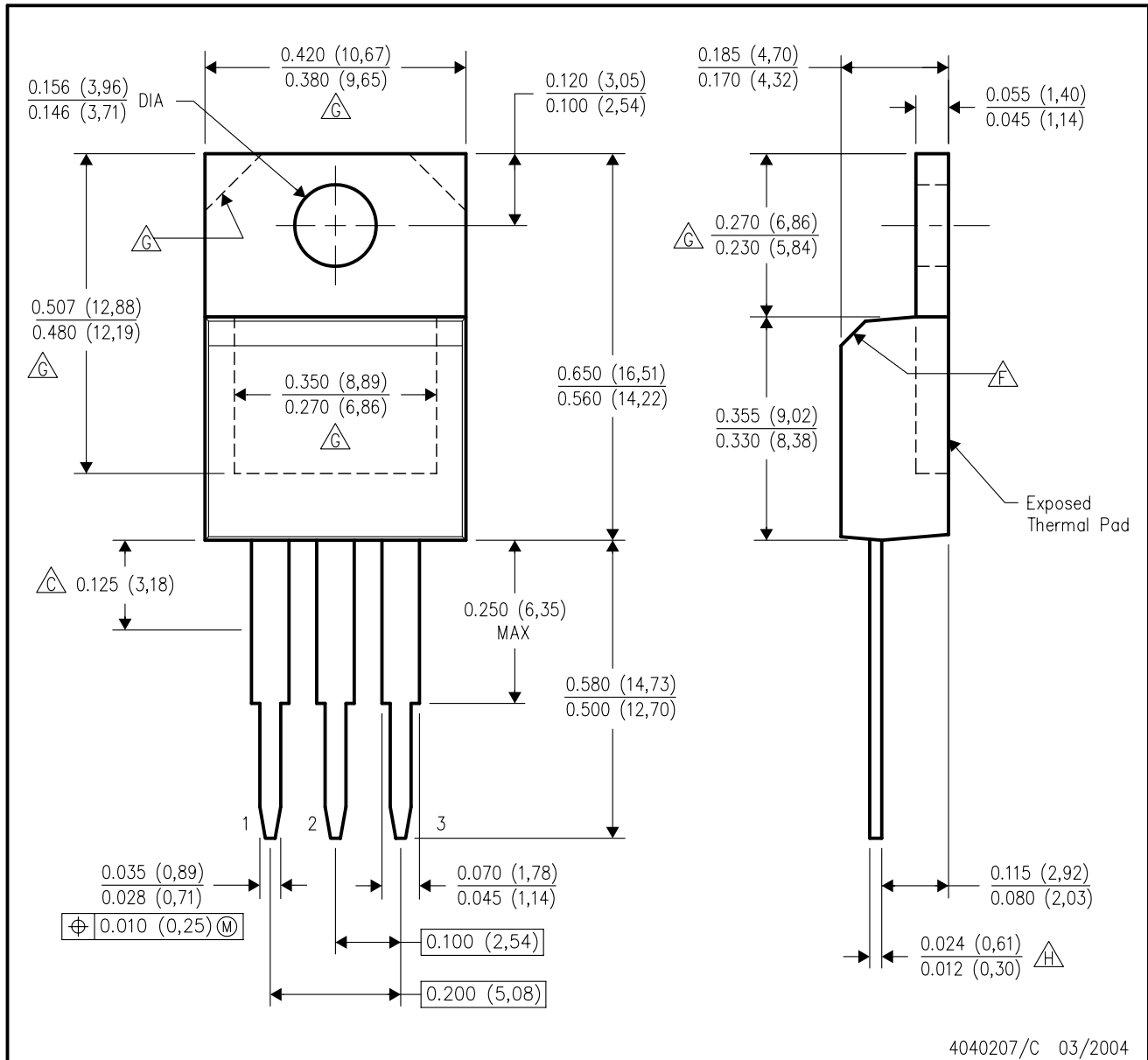
PLASTIC FLANGE-MOUNT PACKAGE



- NOTES:
- A. All linear dimensions are in inches (millimeters).
  - B. This drawing is subject to change without notice.
  - 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.
  - F. The chamfer is optional.
  - G. Thermal pad contour optional within these dimensions.
  - H. Falls within JEDEC TO-220 variation AB, except minimum lead thickness and minimum exposed pad length.

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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