2007/12/03

UA78L05ACPKG3 — TEXAS INSTRUMENTS — REGULATEUR 5V 100MA FIXE CMS

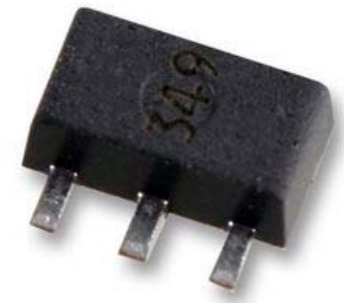


Image non contractuelle - Seulement à titre d'illustration.
Veuillez vous reporter au descriptif technique.

Fabricant: TEXAS INSTRUMENTS

Code commande: 1236590

Référence fabricant: UA78L05ACPKG3

Conformité RoHS : **Oui**

Description

- REGULATEUR 5V 100MA FIXE CMS
- Type de régulation de tension:Fixed Positive Voltage
- Tension, sortie:5V
- Courant, sortie max.:0.1A
- Tension, entrée max.:20V
- Température de fonctionnement min.:0°C
- Température de fonctionnement max.:125°C
- Nombre de broches:3
- Racine de la référence:78
- Tension, déclenchement:1.7V
- Tension, entrée min.:7V
- Tolérance, tension de fonctionnement +:5%
- Type de boîtier:SOT-89

Disponibilité

Disponibilité: 592

Prix Pour: 1

Quantité minimum: 1

Multiple de commande: 1

Prix Unitaire HT: 0,35 €

Qté

Prix

Qté	Prix Unitaire HT
1 - 9	0,35 €
10 - 99	0,24 €
100 - 249	0,171 €
250 - 499	0,161 €
500 +	0,14 €

Description technique	Attributs techniques
Certificat de conformité RoHS **Technical (639 kB) EN** **Manufacturer Product Page** Get ADOBE READER	**poids (kg):** 0,000033 *Poids approximatif dans son emballage d'origine* **Tarif Douanier:** 85423990 **Pays d'origine:** TW Taiwan *Pays dans lequel la dernière étape de production majeure est intervenue*

Produits équivalents

Image	Code Commande	Fabricant Réf. fab.	Description	Données techniques	Conformité RoHS	Pièces en stock.	Qté par Paquet	Prix Unitaire HT	Qté
	9593870	TEXAS INSTRUMENTS UA78L05ACPKG4	**REGULATEUR 5V 100MA FIXE CMS** Type de régulation de tension:Fixed; Tension, sortie:5V; Courant, sortie max.:0.1A; Tension, entrée max.:20V; Température de fonctionnement min.:0°C; Température de fonctionnement max.:125°C;		Oui	6847	1		

Accessoires

Image	Code Commande	Fabricant Réf. fab.	Description	Données techniques	Conformité RoHS	Pièces en stock.	Qté par Paquet	Prix Unitaire HT	Qté
	1172113	ROTH ELEKTRONIK RE901	**MULTI ADAPTATEUR CMS SOT-23** Diamètre de perçage du circuit imprimé:1mm; Diamètre, embase:1.5mm; Epaisseur de cuivre:35µm; Largeur (externe):22.86mm; Longueur/hauteur:1.5mm; Matière:Epoxyd FR4; Nombre de faces cuivrées:2;		Oui	52	1		

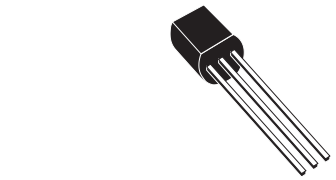
FooterLogo

L78LxxAB
L78LxxAC - L78LxxC

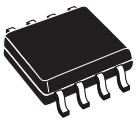
Positive voltage regulators

Features

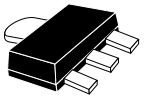
- Output current up to 100 mA
- Output voltages of 3.3; 5; 6; 8; 9; 10; 12; 15; 18; 24 V
- Thermal overload protection
- Short circuit protection
- No external components are required
- Available in either ±5% (AC) or ±10% (C) selection



TO-92



SO-8



SOT-89

Description

The L78Lxx series of three-terminal positive regulators employ internal current limiting and thermal shutdown, making them essentially indestructible. If adequate heat-sink is provided, they can deliver up to 100 mA output current. They are intended as fixed voltage regulators in a wide range of applications including local or on-card regulation for elimination of noise and distribution problems associated with single-point regulation.

In addition, they can be used with power pass elements to make high-current voltage regulators. The L78Lxx series used as Zener diode/resistor combination replacement, offers an effective output impedance improvement of typically two orders of magnitude, along with lower quiescent current and lower noise.

Table 1. Device summary

Part number		
L78L33C	L78L08AC	L78L12AB
L78L33AC	L78L08AB	L78L15C
L78L33AB	L78L09C	L78L15AC
L78L05C	L78L09AC	L78L15AB
L78L05AC	L78L09AB	L78L18C
L78L05AB	L78L10C	L78L18AC
L78L06AC	L78L10AC	L78L24C
L78L06AB	L78L12C	L78L24AC
L78L08C	L78L12AC	L78L24AB

2 Pin configuration

Figure 2. Pin connection (top view, bottom view for TO-92)

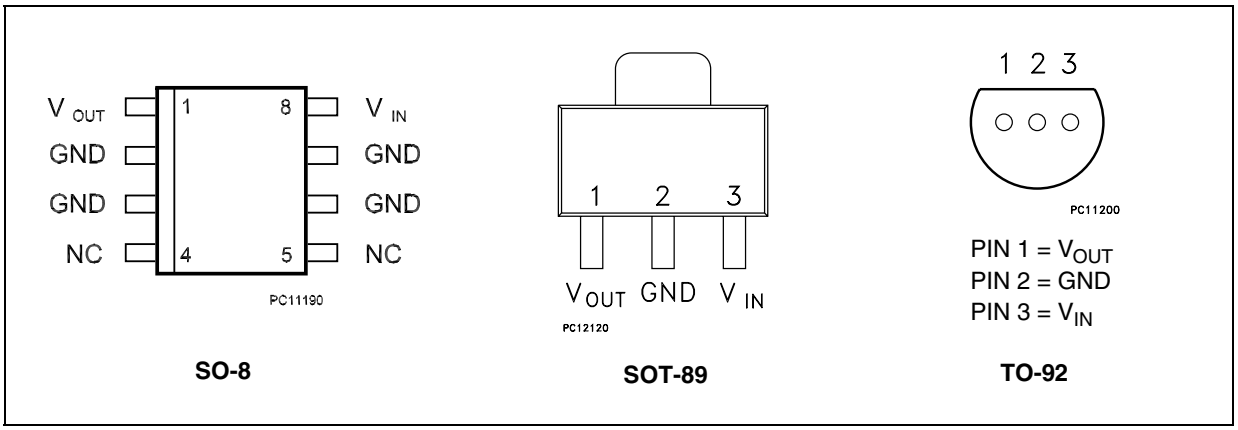
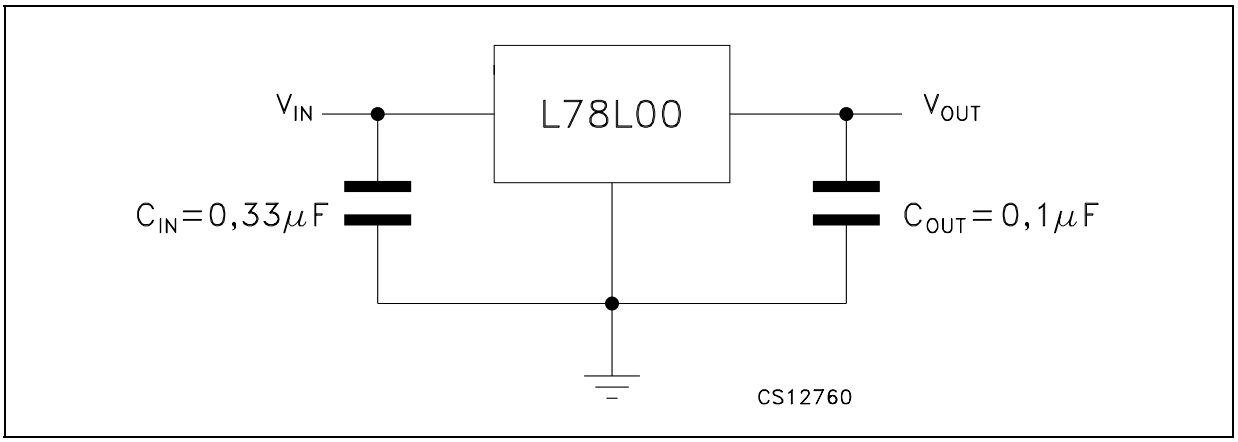


Figure 3. Test circuits



3 Maximum ratings

Table 2. Absolute maximum ratings

Symbol	Parameter		Value	Unit
V_I	DC Input voltage	V_O= 3.3 to 9 V	30	V
		V_O= 12 to 15 V	35	
		V_O= 18 to 24 V	40	
I_O	Output current		100	mA
P_D	Power dissipation		Internally Limited (1)	mW
T_{STG}	Storage temperature range		-65 to 150	°C
T_{OP}	Operating junction temperature range	for L78L00AC	0 to 150	°C
		for L78L00AB	-40 to 125	

1. Our SO-8 package used for Voltage Regulators is modified internally to have pins 2, 3, 6 and 7 electrically communed to the die attach flag. This particular frame decreases the total thermal resistance of the package and increases its ability to dissipate power when an appropriate area of copper on the printed circuit board is available for heat-sinking. The external dimensions are the same as for the standard SO-8.

Table 3. Thermal data

Symbol	Parameter	SO-8	TO-92	SOT-89	Unit
R_{thJC}	Thermal resistance junction-case. (Max)	20		15	°C/W
R_{thJA}	Thermal resistance junction-ambient. (Max)	55 (1)	200		°C/W

1. Considering 6 cm^2 of copper Board heat-sink.

Table 5. Electrical characteristics of L78L05C (refer to the test circuits, T_J = 0 to 125°C, V_I = 10 V, I_O = 40 mA, C_I = 0.33 µF, C_O = 0.1 µF unless otherwise specified)

Symbol	Parameter	Test conditions	Min.	Typ.	Max.	Unit
V_O	Output voltage	T_J = 25°C	4.6	5	5.4	V
V_O	Output voltage	I_O = 1 to 40 mA, V_I = 7 to 20 V	4.5		5.5	V
		I_O = 1 to 70 mA, V_I = 10 V	4.5		5.5	
ΔV_O	Line regulation	V_I = 8.5 to 20 V, T_J = 25°C			200	mV
		V_I = 9 to 20 V, T_J = 25°C			150	
ΔV_O	Load regulation	I_O = 1 to 100 mA, T_J = 25°C			60	mV
		I_O = 1 to 40 mA, T_J = 25°C			30	
I_d	Quiescent current	T_J = 25°C			6	mA
		T_J = 125°C			5.5	mA
ΔI_d	Quiescent current change	I_O = 1 to 40 mA			0.2	mA
		V_I = 8 to 20 V			1.5	
eN	Output noise voltage	B =10 Hz to 100 KHz, T_J = 25°C		40		µV
SVR	Supply voltage rejection	V_I = 9 to 20 V, f = 120 Hz I_O = 40 mA, T_J = 25°C	40	49		dB
V_d	Dropout voltage			1.7		V

Table 6. Electrical characteristics of L78L08C (refer to the test circuits, T_J = 0 to 125°C, V_I = 14 V, I_O = 40 mA, C_I = 0.33 µF, C_O = 0.1 µF unless otherwise specified)

Symbol	Parameter	Test conditions	Min.	Typ.	Max.	Unit
V_O	Output voltage	T_J = 25°C	7.36	8	8.64	V
V_O	Output voltage	I_O = 1 to 40 mA, V_I = 8.5 to 20 V	7.2		8.8	V
		I_O = 1 to 70 mA, V_I = 12 V	7.2		8.8	
ΔV_O	Line regulation	V_I = 8.5 to 20 V, T_J = 25°C			200	mV
		V_I = 9 to 20 V, T_J = 25°C			150	
ΔV_O	Load regulation	I_O = 1 to 100 mA, T_J = 25°C			80	mV
		I_O = 1 to 40 mA, T_J = 25°C			40	
I_d	Quiescent current	T_J = 25°C			6	mA
		T_J = 125°C			5.5	mA
ΔI_d	Quiescent current change	I_O = 1 to 40 mA			0.2	mA
		V_I = 8 to 20 V			1.5	
eN	Output noise voltage	B =10 Hz to 100 KHz, T_J = 25°C		60		µV
SVR	Supply voltage rejection	V_I = 9 to 20 V, f = 120 Hz I_O = 40 mA, T_J = 25°C	36	45		dB
V_d	Dropout voltage			1.7		V

Table 13. Electrical characteristics of L78L33AB and L78L33AC (refer to the test circuits, V_I = 8.3 V, I_O = 40 mA, C_I = 0.33 µF, C_O = 0.1 µF, T_J = 0 to 125°C for L78L33AC, T_J = -40 to 125°C for L78L33AB, unless otherwise specified)

Symbol	Parameter	Test conditions	Min.	Typ.	Max.	Unit
V_O	Output voltage	T_J = 25°C	3.168	3.3	3.432	V
V_O	Output voltage	I_O = 1 to 40 mA, V_I = 5.3 to 20 V	3.135		3.465	V
		I_O = 1 to 70 mA, V_I = 8.3 V	3.135		3.465	
ΔV_O	Line regulation	V_I = 5.3 to 20 V, T_J = 25°C			150	mV
		V_I = 6.3 to 20 V, T_J = 25°C			100	
ΔV_O	Load regulation	I_O = 1 to 100 mA, T_J = 25°C			60	mV
		I_O = 1 to 40 mA, T_J = 25°C			30	
I_d	Quiescent current	T_J = 25°C			6	mA
		T_J = 125°C			5.5	mA
ΔI_d	Quiescent current change	I_O = 1 to 40 mA			0.1	mA
		V_I = 6.3 to 20 V			1.5	
eN	Output noise voltage	B =10 Hz to 100 KHz, T_J = 25°C		40		µV
SVR	Supply voltage rejection	V_I = 6.3 to 16.3 V, f = 120 Hz I_O = 40 mA, T_J = 25°C	41	49		dB
V_d	Dropout voltage			1.7		V

Table 14. Electrical characteristics of L78L05AB and L78L05AC (refer to the test circuits, V_I = 10 V, I_O = 40 mA, C_I = 0.33 µF, C_O = 0.1 µF, T_J = 0 to 125°C for L78L05AC, T_J = -40 to 125°C for L78L05AB, unless otherwise specified)

Symbol	Parameter	Test conditions	Min.	Typ.	Max.	Unit
V_O	Output voltage	T_J = 25°C	4.8	5	5.2	V
V_O	Output voltage	I_O = 1 to 40 mA, V_I = 7 to 20 V	4.75		5.25	V
		I_O = 1 to 70 mA, V_I = 10 V	4.75		5.25	
ΔV_O	Line regulation	V_I = 7 to 20 V, T_J = 25°C			150	mV
		V_I = 8 to 20 V, T_J = 25°C			100	
ΔV_O	Load regulation	I_O = 1 to 100 mA, T_J = 25°C			60	mV
		I_O = 1 to 40 mA, T_J = 25°C			30	
I_d	Quiescent current	T_J = 25°C			6	mA
		T_J = 125°C			5.5	mA
ΔI_d	Quiescent current change	I_O = 1 to 40 mA			0.1	mA
		V_I = 8 to 20 V			1.5	
eN	Output noise voltage	B =10 Hz to 100 KHz, T_J = 25°C		40		µV
SVR	Supply voltage rejection	V_I = 8 to 18 V, f = 120 Hz I_O = 40 mA, T_J = 25°C	41	49		dB
V_d	Dropout voltage			1.7		V

5 Typical performance

Figure 4. L78L05/12 output voltage vs ambient temperature

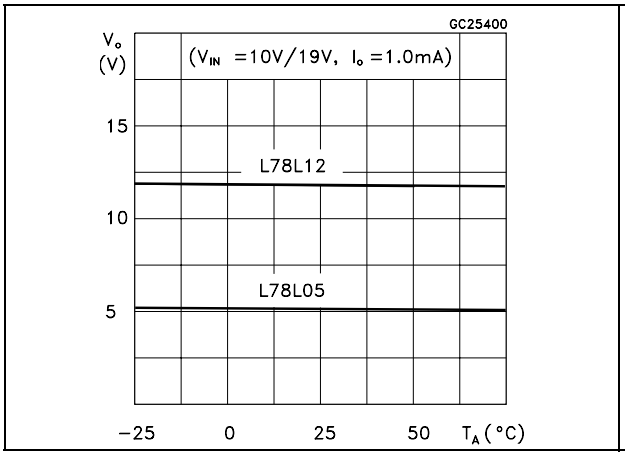


Figure 5. L78L05/12/24 load characteristics

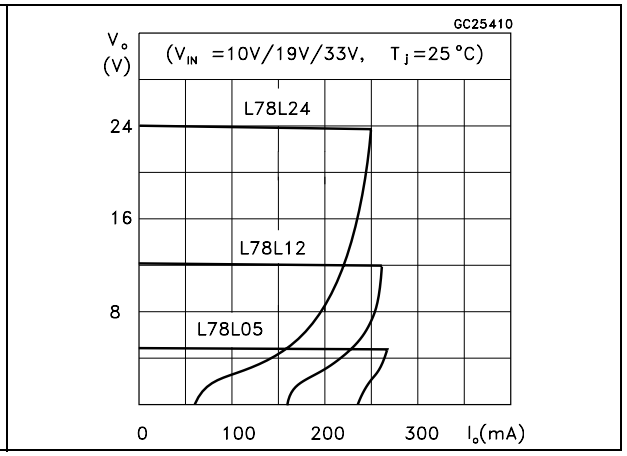


Figure 6. L78L05/12/24 thermal shutdown

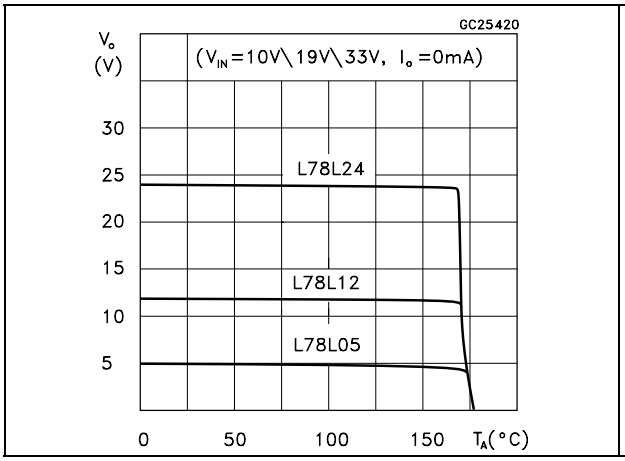


Figure 7. L78L05/12 quiescent current vs output current

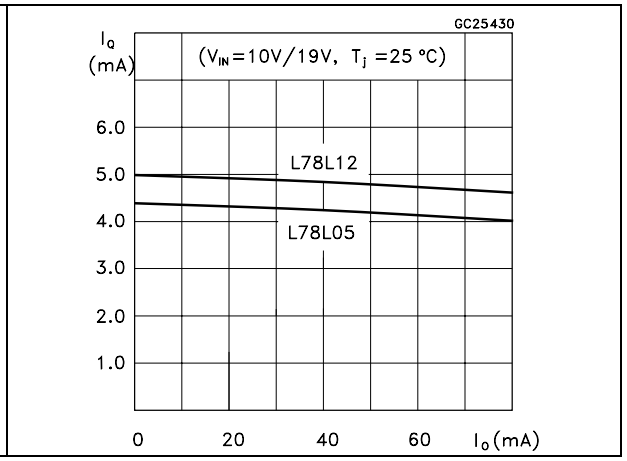


Figure 8. L78L05 quiescent current vs input voltage

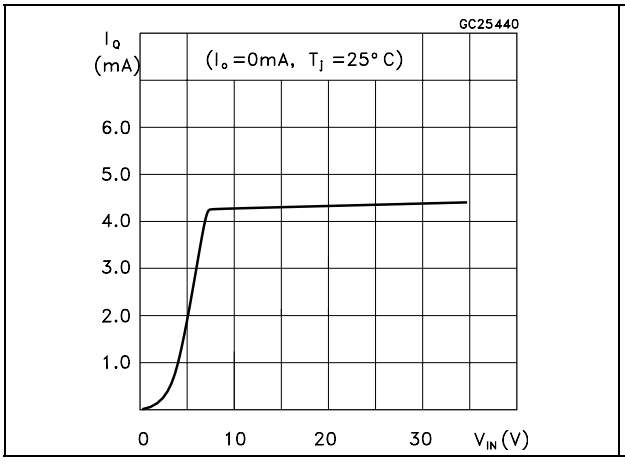


Figure 9. L78L05/12/24 output characteristics

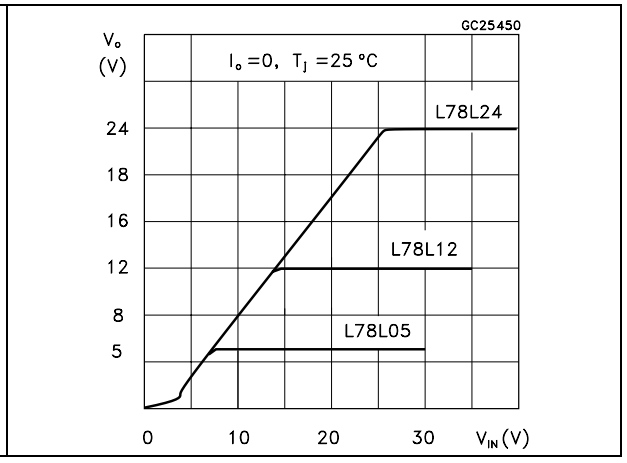


Figure 10. L78L05/12/24 ripple rejection

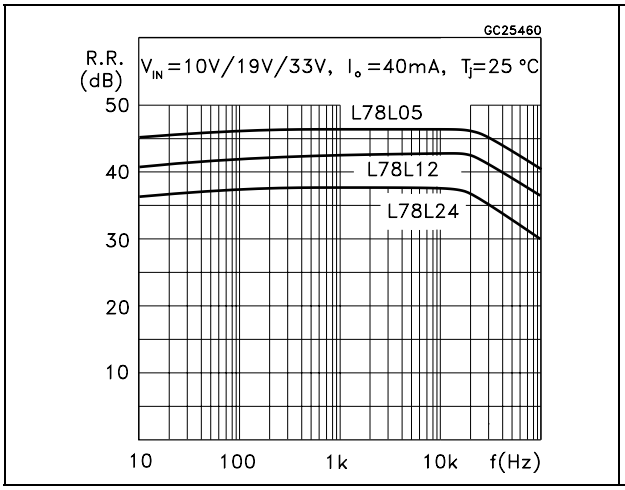


Figure 11. L78L05 dropout characteristics

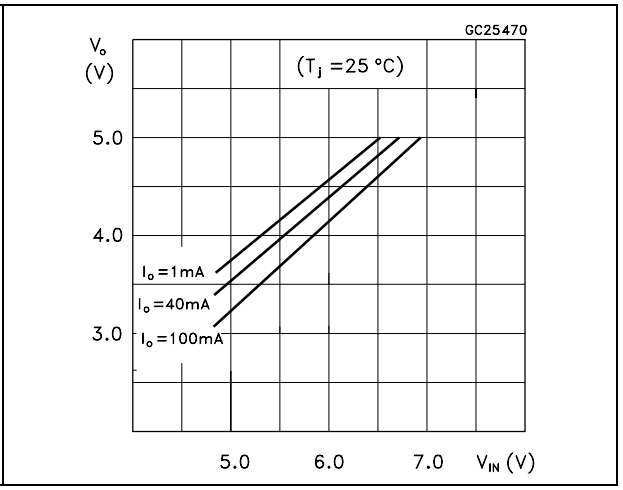
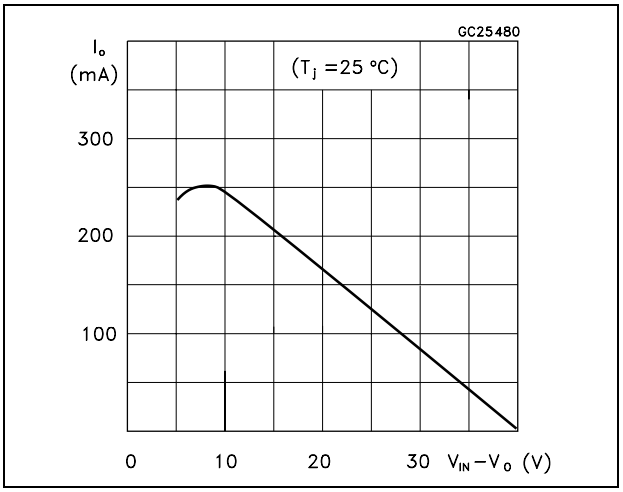
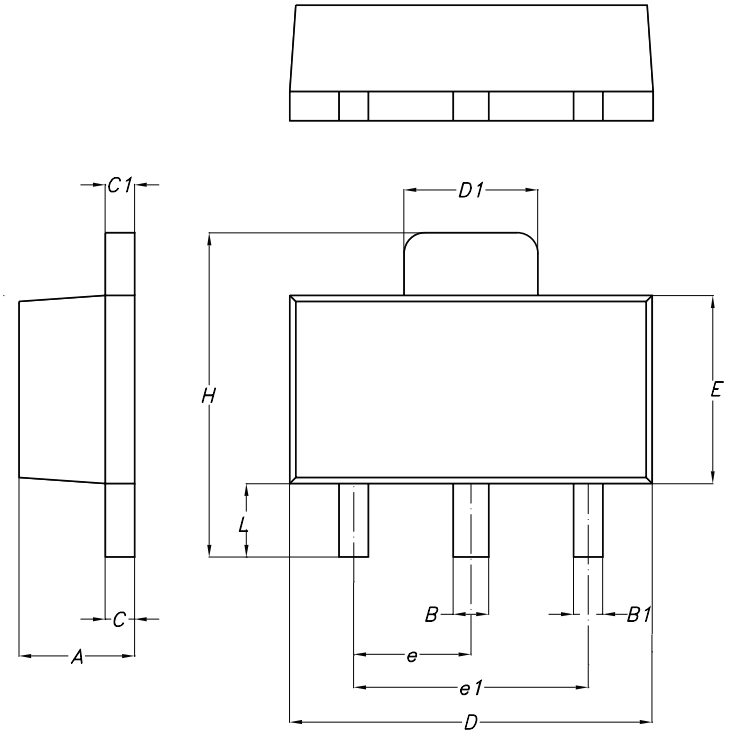


Figure 12. L78L00 series short circuit output current



SOT-89 mechanical data

Dim.	mm.			mils.		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	1.4		1.6	55.1		63.0
B	0.44		0.56	17.3		22.0
B1	0.36		0.48	14.2		18.9
C	0.35		0.44	13.8		17.3
C1	0.35		0.44	13.8		17.3
D	4.4		4.6	173.2		181.1
D1	1.62		1.83	63.8		72.0
E	2.29		2.6	90.2		102.4
e	1.42		1.57	55.9		61.8
e1	2.92		3.07	115.0		120.9
H	3.94		4.25	155.1		167.3
L	0.89		1.2	35.0		47.2



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