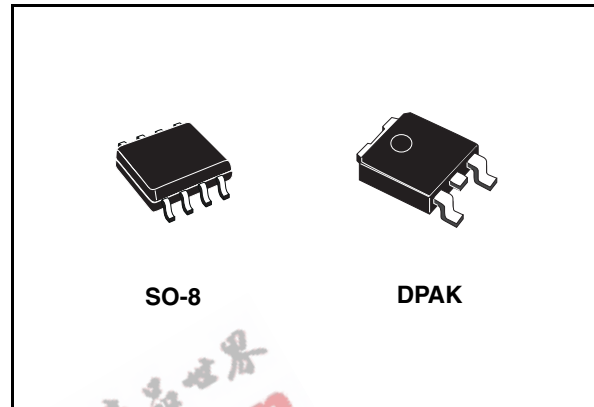


## Very low drop voltage regulators with inhibit

### Features

- Very low dropout voltage (0.4 V)
- Very low quiescent current (typ. 50  $\mu$ A in OFF Mode, 500  $\mu$ A in ON Mode)
- Output current up to 500 mA
- Logic-controlled electronic shutdown
- Output voltages of 1.5; 2.5; 3; 3.3; 4; 5; 5.2; 6; 8
- Internal current and thermal limit
- Only 2.2  $\mu$ F for stability
- Available in  $\pm 2$  % accuracy at 25  $^{\circ}$ C
- Supply voltage rejection: 70 db (typ.)
- Temperature range: -40 to 125  $^{\circ}$ C



### Description

The KFxx series are very low drop regulators available in SO-8 package and in a wide range of output voltages.

The very low drop voltage (0.4 V) and the very low quiescent current make them particularly

suitable for low noise, low power applications and specially in battery powered systems.

A shutdown logic control function is available (pin 5, TTL compatible). This means that when the device is used as a local regulator, it is possible to put a part of the board in standby, decreasing the total power consumption. It requires only a 2.2  $\mu$ F capacitor for stability allowing space and cost saving.

**Table 1. Device summary**

Part numbers	
KF15B	KF40B
KF25B	KF50B
KF30B	KF52B
KF33B	KF80B

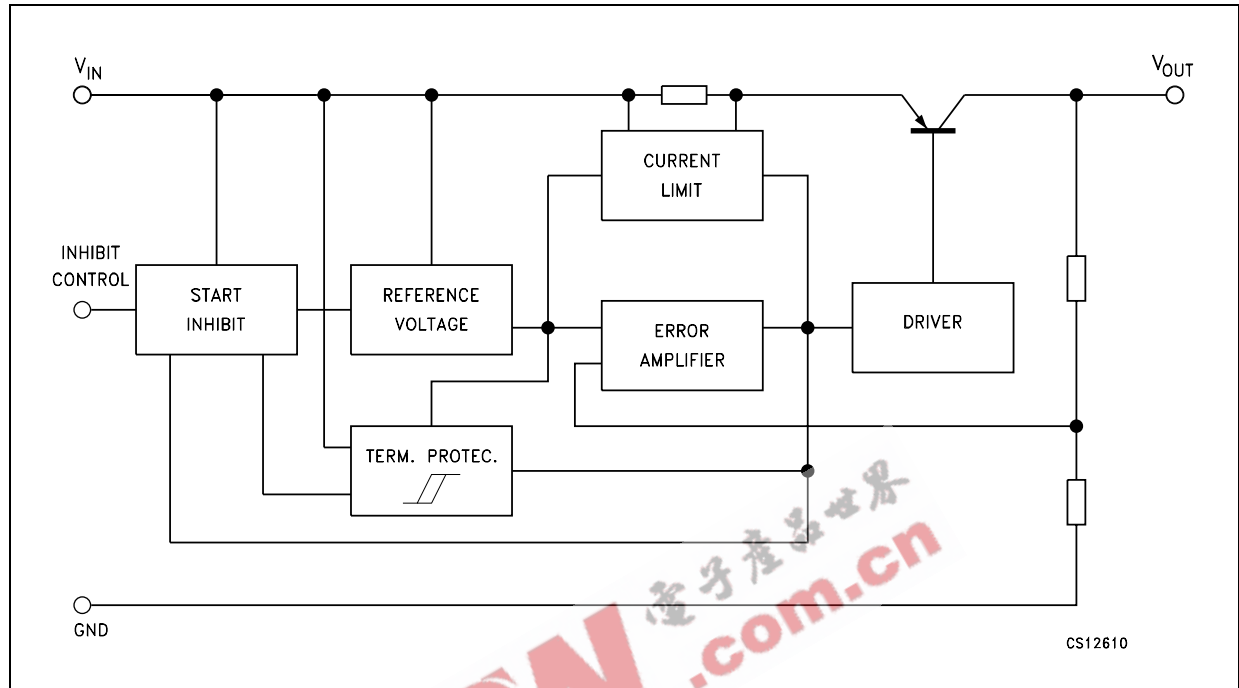
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# 1 Diagram

Figure 1. Schematic diagram



## 2 Pin configuration

Figure 2. Pin connections (top view)



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### 3 Maximum ratings

**Table 2. Absolute maximum ratings**

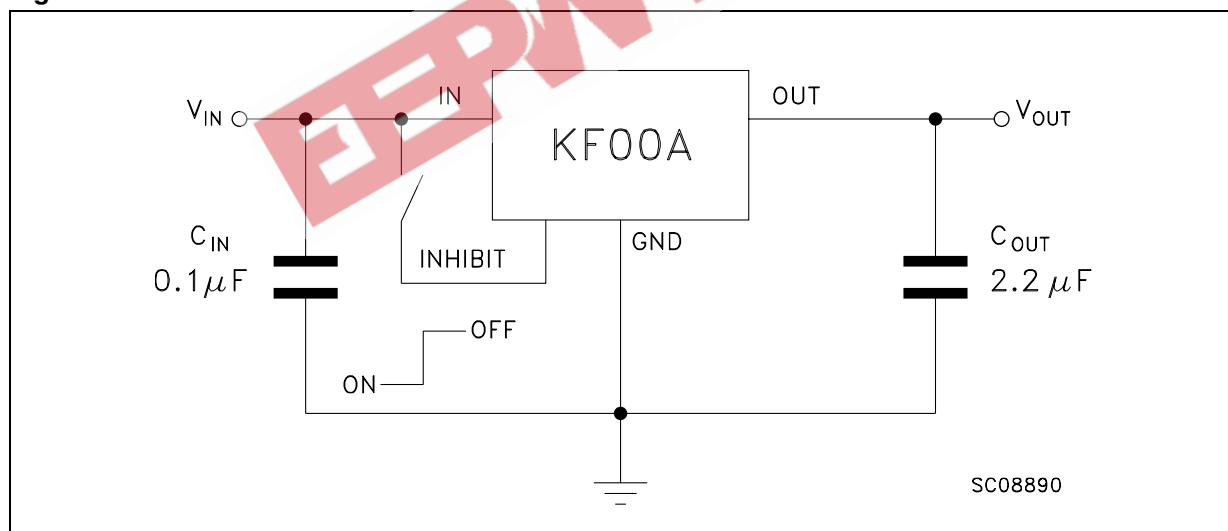
Symbol	Parameter	Value	Unit
$V_I$	DC input voltage	-0.5 to 20	V
$I_O$	Output current	Internally Limited	
$P_{TOT}$	Power dissipation	Internally Limited	
$T_{STG}$	Storage temperature range	-40 to 150	°C
$T_{OP}$	Operating junction temperature range	-40 to 125	°C

*Note: Absolute maximum ratings are those values beyond which damage to the device may occur. Functional operation under these condition is not implied.*

**Table 3. Thermal data**

Symbol	Parameter	DPAK	SO-8	Unit
$R_{thJC}$	Thermal resistance junction-case	8	20	°C/W

**Figure 3. Test circuit**



## 4 Electrical characteristics

**Table 4. Electrical characteristics for KF15** (refer to the test circuits,  $T_J = 25\text{ °C}$ ,  $C_I = 0.1\text{ }\mu\text{F}$ ,  $C_O = 2.2\text{ }\mu\text{F}$  unless otherwise specified.)

Symbol	Parameter	Test conditions	Min.	Typ.	Max.	Unit
$V_O$	Output voltage	$I_O = 50\text{ mA}$ , $V_I = 3.5\text{ V}$	1.47	1.5	1.53	V
		$I_O = 50\text{ mA}$ , $V_I = 3.5\text{ V}$ , $T_a = -25\text{ to }85\text{ °C}$	1.44		1.56	
$V_I$	Operating input voltage	$I_O = 500\text{ mA}$	2.5		20	V
$I_O$	Output current limit			1		A
$\Delta V_O$	Line regulation	$V_I = 2.5\text{ to }20\text{ V}$ , $I_O = 5\text{ mA}$		2	12	mV
$\Delta V_O$	Load regulation	$V_I = 2.8\text{ V}$ , $I_O = 5\text{ to }500\text{ mA}$		2	50	mV
$I_d$	Quiescent current	$V_I = 2.5\text{ to }20\text{ V}$ , $I_O = 0\text{ mA}$	ON MODE	0.5	1	mA
		$V_I = 2.8\text{ to }20\text{ V}$ , $I_O = 500\text{ mA}$			12	
		$V_I = 6\text{ V}$	OFF MODE	50	100	$\mu\text{A}$
SVR	Supply voltage rejection	$I_O = 5\text{ mA}$ , $V_I = 3.5 \pm 1\text{ V}$	$f = 120\text{ Hz}$	82		dB
			$f = 1\text{ kHz}$	77		
			$f = 10\text{ kHz}$	60		
eN	Output noise voltage	$B = 10\text{ Hz to }100\text{ kHz}$		50		$\mu\text{V}$
$V_d$	Dropout voltage	$I_O = 200\text{ mA}$		1		V
$V_{IL}$	Control input logic low	$T_a = -40\text{ to }125\text{ °C}$			0.8	V
$V_{IH}$	Control input logic high	$T_a = -40\text{ to }125\text{ °C}$	2			V
$I_I$	Control input current	$V_I = 6\text{ V}$ , $V_C = 6\text{ V}$		10		$\mu\text{A}$
$C_O$	Output bypass capacitance	$\text{ESR} = 0.1\text{ to }10\text{ }\Omega$ , $I_O = 0\text{ to }500\text{ mA}$	2	10		$\mu\text{F}$

**Table 5. Electrical characteristics for KF25** (refer to the test circuits,  $T_J = 25\text{ }^\circ\text{C}$ ,  $C_I = 0.1\text{ }\mu\text{F}$ ,  $C_O = 2.2\text{ }\mu\text{F}$  unless otherwise specified.)

Symbol	Parameter	Test conditions	Min.	Typ.	Max.	Unit
$V_O$	Output voltage	$I_O = 50\text{ mA}$ , $V_I = 4.5\text{ V}$	2.45	2.5	2.55	V
		$I_O = 50\text{ mA}$ , $V_I = 4.5\text{ V}$ , $T_a = -25\text{ to }85\text{ }^\circ\text{C}$	2.4		2.6	
$V_I$	Operating input voltage	$I_O = 500\text{ mA}$			20	V
$I_O$	Output current limit			1		A
$\Delta V_O$	Line regulation	$V_I = 3.5\text{ to }20\text{ V}$ , $I_O = 5\text{ mA}$		2	12	mV
$\Delta V_O$	Load regulation	$V_I = 3.8\text{ V}$ , $I_O = 5\text{ to }500\text{ mA}$		2	50	mV
$I_d$	Quiescent current	$V_I = 3.5\text{ to }20\text{ V}$ , $I_O = 0\text{ mA}$	ON MODE	0.5	1	mA
		$V_I = 3.8\text{ to }20\text{ V}$ , $I_O = 500\text{ mA}$			12	
		$V_I = 6\text{ V}$	OFF MODE	50	100	$\mu\text{A}$
SVR	Supply voltage rejection	$I_O = 5\text{ mA}$ , $V_I = 4.5 \pm 1\text{ V}$	$f = 120\text{ Hz}$	82		dB
			$f = 1\text{ kHz}$	77		
			$f = 10\text{ kHz}$	60		
eN	Output noise voltage	$B = 10\text{ Hz to }100\text{ KHz}$		50		$\mu\text{V}$
$V_d$	Dropout voltage	$I_O = 200\text{ mA}$		0.2	0.35	V
		$I_O = 500\text{ mA}$		0.4	0.7	
$V_{IL}$	Control input logic low	$T_a = -40\text{ to }125\text{ }^\circ\text{C}$			0.8	V
$V_{IH}$	Control input logic high	$T_a = -40\text{ to }125\text{ }^\circ\text{C}$	2			V
$I_I$	Control input current	$V_I = 6\text{ V}$ , $V_C = 6\text{ V}$		10		$\mu\text{A}$
$C_O$	Output bypass capacitance	$\text{ESR} = 0.1\text{ to }10\text{ }\Omega$ , $I_O = 0\text{ to }500\text{ mA}$	2	10		$\mu\text{F}$

**Table 6. Electrical characteristics for KF30** (refer to the test circuits,  $T_J = 25\text{ }^\circ\text{C}$ ,  $C_I = 0.1\text{ }\mu\text{F}$ ,  $C_O = 2.2\text{ }\mu\text{F}$  unless otherwise specified.)

Symbol	Parameter	Test conditions	Min.	Typ.	Max.	Unit
$V_O$	Output voltage	$I_O = 50\text{ mA}$ , $V_I = 5\text{ V}$	2.94	3	3.06	V
		$I_O = 50\text{ mA}$ , $V_I = 5\text{ V}$ , $T_a = -25\text{ to }85\text{ }^\circ\text{C}$	2.88		3.12	
$V_I$	Operating input voltage	$I_O = 500\text{ mA}$			20	V
$I_O$	Output current limit			1		A
$\Delta V_O$	Line regulation	$V_I = 4\text{ to }20\text{ V}$ , $I_O = 5\text{ mA}$		2	12	mV
$\Delta V_O$	Load regulation	$V_I = 4.3\text{ V}$ , $I_O = 5\text{ to }500\text{ mA}$		2	50	mV
$I_d$	Quiescent current	$V_I = 4\text{ to }20\text{ V}$ , $I_O = 0\text{ mA}$	ON MODE	0.5	1	mA
		$V_I = 4.3\text{ to }20\text{ V}$ , $I_O = 500\text{ mA}$			12	
		$V_I = 6\text{ V}$	OFF MODE	50	100	$\mu\text{A}$
SVR	Supply voltage rejection	$I_O = 5\text{ mA}$ , $V_I = 5 \pm 1\text{ V}$	$f = 120\text{ Hz}$	81		dB
			$f = 1\text{ kHz}$	76		
			$f = 10\text{ kHz}$	60		
eN	Output noise voltage	$B = 10\text{ Hz to }100\text{ KHz}$		50		$\mu\text{V}$
$V_d$	Dropout voltage	$I_O = 200\text{ mA}$		0.2	0.35	V
		$I_O = 500\text{ mA}$		0.4	0.7	
$V_{IL}$	Control input logic low	$T_a = -40\text{ to }125\text{ }^\circ\text{C}$			0.8	V
$V_{IH}$	Control input logic high	$T_a = -40\text{ to }125\text{ }^\circ\text{C}$	2			V
$I_I$	Control input current	$V_I = 6\text{ V}$ , $V_C = 6\text{ V}$		10		$\mu\text{A}$
$C_O$	Output bypass capacitance	$\text{ESR} = 0.1\text{ to }10\text{ }\Omega$ , $I_O = 0\text{ to }500\text{ mA}$	2	10		$\mu\text{F}$



**Table 7. Electrical characteristics for KF33** (refer to the test circuits,  $T_J = 25\text{ }^\circ\text{C}$ ,  $C_I = 0.1\text{ }\mu\text{F}$ ,  $C_O = 2.2\text{ }\mu\text{F}$  unless otherwise specified.)

Symbol	Parameter	Test conditions	Min.	Typ.	Max.	Unit
$V_O$	Output voltage	$I_O = 50\text{ mA}$ , $V_I = 5.3\text{ V}$	3.234	3.3	3.366	V
		$I_O = 50\text{ mA}$ , $V_I = 5.3\text{ V}$ , $T_a = -25\text{ to }85\text{ }^\circ\text{C}$	3.168		3.432	
$V_I$	Operating input voltage	$I_O = 500\text{ mA}$			20	V
$I_O$	Output current limit			1		A
$\Delta V_O$	Line regulation	$V_I = 4.3\text{ to }20\text{ V}$ , $I_O = 5\text{ mA}$		2	12	mV
$\Delta V_O$	Load regulation	$V_I = 4.6\text{ V}$ , $I_O = 5\text{ to }500\text{ mA}$		2	50	mV
$I_d$	Quiescent current	$V_I = 4.3\text{ to }20\text{ V}$ , $I_O = 0\text{ mA}$	ON MODE	0.5	1	mA
		$V_I = 4.6\text{ to }20\text{ V}$ , $I_O = 500\text{ mA}$			12	
		$V_I = 6\text{ V}$	OFF MODE	50	100	$\mu\text{A}$
SVR	Supply voltage rejection	$I_O = 5\text{ mA}$ , $V_I = 5.3 \pm 1\text{ V}$	$f = 120\text{ Hz}$	80		dB
			$f = 1\text{ kHz}$	75		
			$f = 10\text{ kHz}$	60		
eN	Output noise voltage	$B = 10\text{ Hz to }100\text{ KHz}$		50		$\mu\text{V}$
$V_d$	Dropout voltage	$I_O = 200\text{ mA}$		0.2	0.35	V
		$I_O = 500\text{ mA}$		0.4	0.7	
$V_{IL}$	Control input logic low	$T_a = -40\text{ to }125\text{ }^\circ\text{C}$			0.8	V
$V_{IH}$	Control input logic high	$T_a = -40\text{ to }125\text{ }^\circ\text{C}$	2			V
$I_I$	Control input current	$V_I = 6\text{ V}$ , $V_C = 6\text{ V}$		10		$\mu\text{A}$
$C_O$	Output bypass capacitance	$\text{ESR} = 0.1\text{ to }10\text{ }\Omega$ , $I_O = 0\text{ to }500\text{ mA}$	2	10		$\mu\text{F}$

**Table 8. Electrical characteristics for KF40** (refer to the test circuits,  $T_J = 25\text{ }^\circ\text{C}$ ,  $C_I = 0.1\text{ }\mu\text{F}$ ,  $C_O = 2.2\text{ }\mu\text{F}$  unless otherwise specified.)

Symbol	Parameter	Test conditions	Min.	Typ.	Max.	Unit
$V_O$	Output voltage	$I_O = 50\text{ mA}$ , $V_I = 6\text{ V}$	3.92	4	4.08	V
		$I_O = 50\text{ mA}$ , $V_I = 6\text{ V}$ , $T_a = -25\text{ to }85\text{ }^\circ\text{C}$	3.84		4.16	
$V_I$	Operating input voltage	$I_O = 500\text{ mA}$			20	V
$I_O$	Output current limit			1		A
$\Delta V_O$	Line regulation	$V_I = 5\text{ to }20\text{ V}$ , $I_O = 5\text{ mA}$		3	18	mV
$\Delta V_O$	Load regulation	$V_I = 5.3\text{ V}$ , $I_O = 5\text{ to }500\text{ mA}$		2	50	mV
$I_d$	Quiescent current	$V_I = 5\text{ to }20\text{ V}$ , $I_O = 0\text{ mA}$	ON MODE	0.5	1	mA
		$V_I = 5.3\text{ to }20\text{ V}$ , $I_O = 500\text{ mA}$			12	
		$V_I = 6\text{ V}$	OFF MODE	50	100	$\mu\text{A}$
SVR	Supply voltage rejection	$I_O = 5\text{ mA}$ , $V_I = 6 \pm 1\text{ V}$	$f = 120\text{ Hz}$	78		dB
			$f = 1\text{ kHz}$	73		
			$f = 10\text{ kHz}$	60		
eN	Output noise voltage	$B = 10\text{ Hz to }100\text{ KHz}$		50		$\mu\text{V}$
$V_d$	Dropout voltage	$I_O = 200\text{ mA}$		0.2	0.35	V
		$I_O = 500\text{ mA}$		0.4	0.7	
$V_{IL}$	Control input logic low	$T_a = -40\text{ to }125\text{ }^\circ\text{C}$			0.8	V
$V_{IH}$	Control input logic high	$T_a = -40\text{ to }125\text{ }^\circ\text{C}$	2			V
$I_I$	Control input current	$V_I = 6\text{ V}$ , $V_C = 6\text{ V}$		10		$\mu\text{A}$
$C_O$	Output bypass capacitance	$\text{ESR} = 0.1\text{ to }10\text{ }\Omega$ , $I_O = 0\text{ to }500\text{ mA}$	2	10		$\mu\text{F}$

**Table 9. Electrical characteristics for KF50** (refer to the test circuits,  $T_J = 25\text{ }^\circ\text{C}$ ,  $C_I = 0.1\text{ }\mu\text{F}$ ,  $C_O = 2.2\text{ }\mu\text{F}$  unless otherwise specified.)

Symbol	Parameter	Test conditions	Min.	Typ.	Max.	Unit
$V_O$	Output voltage	$I_O = 50\text{ mA}$ , $V_I = 7\text{ V}$	4.9	5	5.1	V
		$I_O = 50\text{ mA}$ , $V_I = 7\text{ V}$ , $T_a = -25\text{ to }85\text{ }^\circ\text{C}$	4.8		5.2	
$V_I$	Operating input voltage	$I_O = 500\text{ mA}$			20	V
$I_O$	Output current limit			1		A
$\Delta V_O$	Line regulation	$V_I = 6\text{ to }20\text{ V}$ , $I_O = 5\text{ mA}$		3	18	mV
$\Delta V_O$	Load regulation	$V_I = 6.3\text{ V}$ , $I_O = 5\text{ to }500\text{ mA}$		2	50	mV
$I_d$	Quiescent current	$V_I = 6\text{ to }20\text{ V}$ , $I_O = 0\text{ mA}$	ON MODE	0.5	1	mA
		$V_I = 6.3\text{ to }20\text{ V}$ , $I_O = 500\text{ mA}$			12	
		$V_I = 6\text{ V}$	OFF MODE	50	100	$\mu\text{A}$
SVR	Supply voltage rejection	$I_O = 5\text{ mA}$ , $V_I = 7 \pm 1\text{ V}$	$f = 120\text{ Hz}$	76		dB
			$f = 1\text{ kHz}$	71		
			$f = 10\text{ kHz}$	60		
eN	Output noise voltage	$B = 10\text{ Hz to }100\text{ KHz}$		50		$\mu\text{V}$
$V_d$	Dropout voltage	$I_O = 200\text{ mA}$		0.2	0.35	V
		$I_O = 500\text{ mA}$		0.4	0.7	
$V_{IL}$	Control input logic low	$T_a = -40\text{ to }125\text{ }^\circ\text{C}$			0.8	V
$V_{IH}$	Control input logic high	$T_a = -40\text{ to }125\text{ }^\circ\text{C}$	2			V
$I_I$	Control input current	$V_I = 6\text{ V}$ , $V_C = 6\text{ V}$		10		$\mu\text{A}$
$C_O$	Output bypass capacitance	$\text{ESR} = 0.1\text{ to }10\text{ }\Omega$ , $I_O = 0\text{ to }500\text{ mA}$	2	10		$\mu\text{F}$

**Table 10. Electrical characteristics for KF52** (refer to the test circuits,  $T_J = 25\text{ }^\circ\text{C}$ ,  $C_I = 0.1\text{ }\mu\text{F}$ ,  $C_O = 2.2\text{ }\mu\text{F}$  unless otherwise specified.)

Symbol	Parameter	Test conditions	Min.	Typ.	Max.	Unit
$V_O$	Output voltage	$I_O = 50\text{ mA}$ , $V_I = 7.2\text{ V}$	5.096	5.2	5.304	V
		$I_O = 50\text{ mA}$ , $V_I = 7.2\text{ V}$ , $T_a = -25\text{ to }85\text{ }^\circ\text{C}$	4.992		5.408	
$V_I$	Operating input voltage	$I_O = 500\text{ mA}$			20	V
$I_O$	Output current limit			1		A
$\Delta V_O$	Line regulation	$V_I = 6.2\text{ to }20\text{ V}$ , $I_O = 5\text{ mA}$		3	18	mV
$\Delta V_O$	Load regulation	$V_I = 6.5\text{ V}$ , $I_O = 5\text{ to }500\text{ mA}$		2	50	mV
$I_d$	Quiescent current	$V_I = 6.2\text{ to }20\text{ V}$ , $I_O = 0\text{ mA}$	ON MODE	0.5	1	mA
		$V_I = 6.5\text{ to }20\text{ V}$ , $I_O = 500\text{ mA}$			12	
		$V_I = 6\text{ V}$	OFF MODE	50	100	$\mu\text{A}$
SVR	Supply voltage rejection	$I_O = 5\text{ mA}$ , $V_I = 7.2 \pm 1\text{ V}$	$f = 120\text{ Hz}$	76		dB
			$f = 1\text{ kHz}$	71		
			$f = 10\text{ kHz}$	60		
eN	Output noise voltage	$B = 10\text{ Hz to }100\text{ KHz}$		50		$\mu\text{V}$
$V_d$	Dropout voltage	$I_O = 200\text{ mA}$		0.2	0.35	V
		$I_O = 500\text{ mA}$		0.4	0.7	
$V_{IL}$	Control input logic low	$T_a = -40\text{ to }125\text{ }^\circ\text{C}$			0.8	V
$V_{IH}$	Control input logic high	$T_a = -40\text{ to }125\text{ }^\circ\text{C}$	2			V
$I_I$	Control input current	$V_I = 6\text{ V}$ , $V_C = 6\text{ V}$		10		$\mu\text{A}$
$C_O$	Output bypass capacitance	$\text{ESR} = 0.1\text{ to }10\text{ }\Omega$ , $I_O = 0\text{ to }500\text{ mA}$	2	10		$\mu\text{F}$

**Table 11. Electrical characteristics for KF80** (refer to the test circuits,  $T_J = 25\text{ }^\circ\text{C}$ ,  $C_I = 0.1\text{ }\mu\text{F}$ ,  $C_O = 2.2\text{ }\mu\text{F}$  unless otherwise specified.)

Symbol	Parameter	Test conditions	Min.	Typ.	Max.	Unit
$V_O$	Output voltage	$I_O = 50\text{ mA}$ , $V_I = 10\text{ V}$	7.84	8	8.16	V
		$I_O = 50\text{ mA}$ , $V_I = 10\text{ V}$ , $T_a = -25\text{ to }85\text{ }^\circ\text{C}$	7.68		8.32	
$V_I$	Operating input voltage	$I_O = 500\text{ mA}$			20	V
$I_O$	Output current limit			1		A
$\Delta V_O$	Line regulation	$V_I = 9\text{ to }20\text{ V}$ , $I_O = 5\text{ mA}$		4	24	mV
$\Delta V_O$	Load regulation	$V_I = 9.3\text{ V}$ , $I_O = 5\text{ to }500\text{ mA}$		2	50	mV
$I_d$	Quiescent current	$V_I = 9\text{ to }20\text{ V}$ , $I_O = 0\text{ mA}$	ON MODE	0.7	1.5	mA
		$V_I = 9.3\text{ to }20\text{ V}$ , $I_O = 500\text{ mA}$			12	
		$V_I = 9\text{ V}$	OFF MODE	70	140	$\mu\text{A}$
SVR	Supply voltage rejection	$I_O = 5\text{ mA}$ , $V_I = 10 \pm 1\text{ V}$	$f = 120\text{ Hz}$	72		dB
			$f = 1\text{ kHz}$	67		
			$f = 10\text{ kHz}$	60		
eN	Output noise voltage	$B = 10\text{ Hz to }100\text{ KHz}$		50		$\mu\text{V}$
$V_d$	Dropout voltage	$I_O = 200\text{ mA}$		0.2	0.35	V
		$I_O = 500\text{ mA}$		0.4	0.7	
$V_{IL}$	Control input logic low	$T_a = -40\text{ to }125\text{ }^\circ\text{C}$			0.8	V
$V_{IH}$	Control input logic high	$T_a = -40\text{ to }125\text{ }^\circ\text{C}$	2			V
$I_I$	Control input current	$V_I = 6\text{ V}$ , $V_C = 6\text{ V}$		10		$\mu\text{A}$
$C_O$	Output bypass capacitance	$\text{ESR} = 0.1\text{ to }10\text{ }\Omega$ , $I_O = 0\text{ to }500\text{ mA}$	2	10		$\mu\text{F}$

## 5 Typical performance characteristics

(unless otherwise specified  $V_{O(NOM)} = 3.3\text{ V}$ )

Figure 4. Dropout voltage vs output current

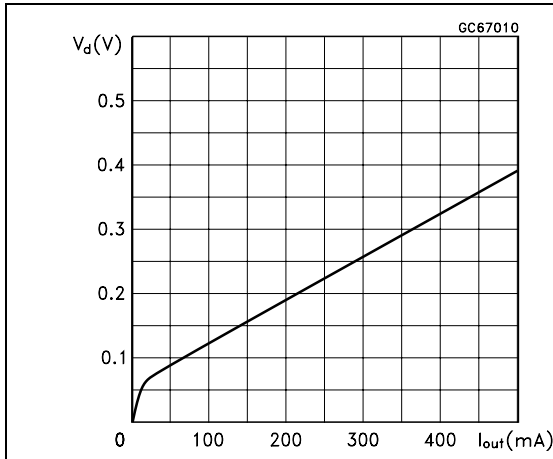


Figure 5. Dropout voltage vs temperature

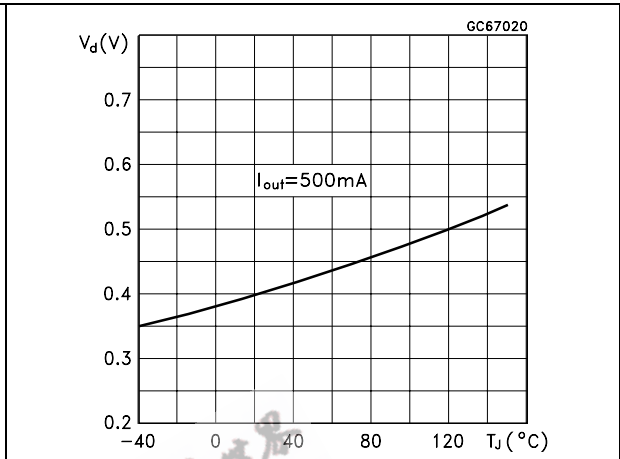


Figure 6. Supply current vs input voltage

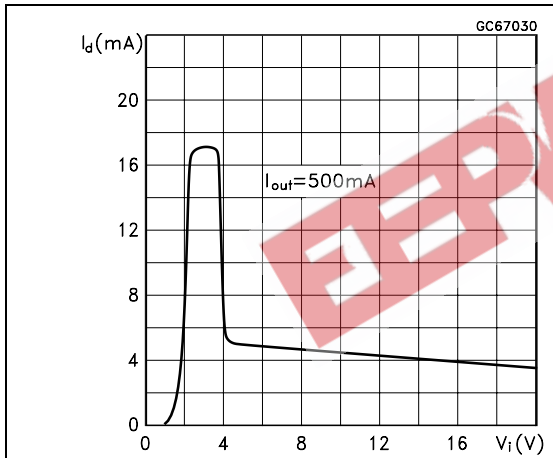


Figure 7. Supply current vs input voltage

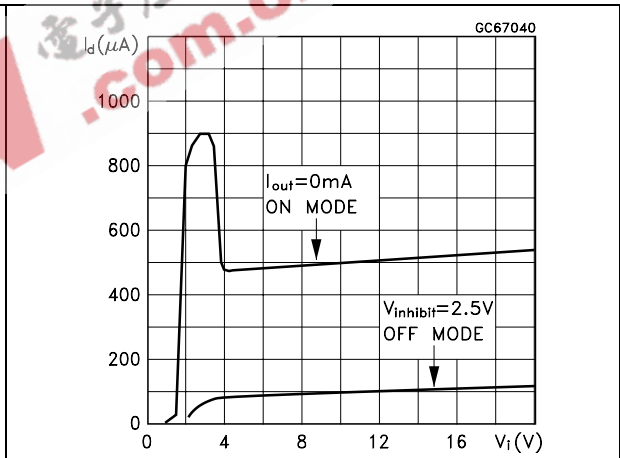


Figure 8. Short circuit current vs input voltage

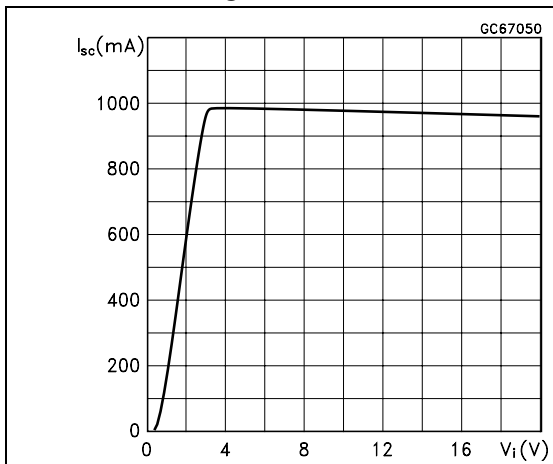
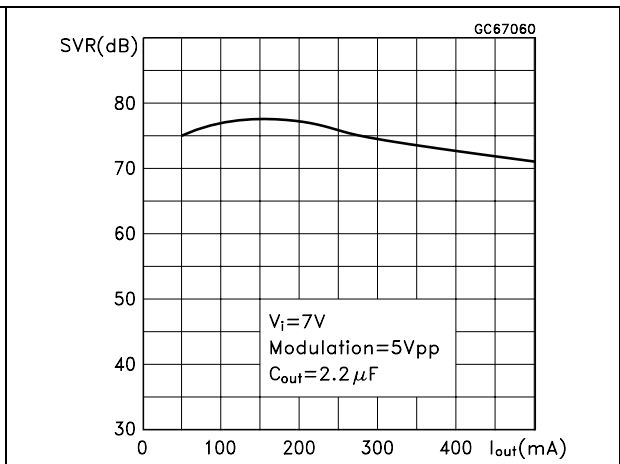


Figure 9. Supply current vs temperature



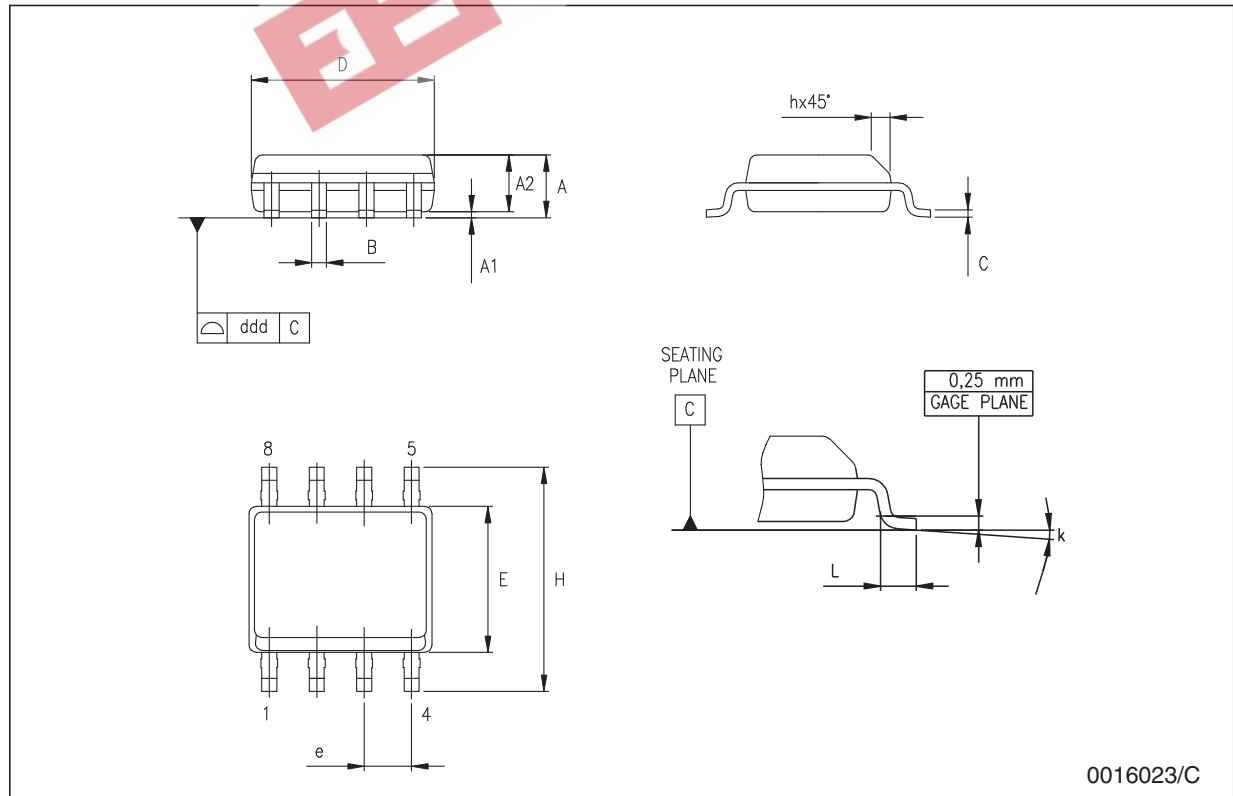
## 6 Package mechanical data

In order to meet environmental requirements, ST offers these devices in ECOPACK® packages. These packages have a lead-free second level interconnect. The category of second Level Interconnect is marked on the package and on the inner box label, in compliance with JEDEC Standard JESD97. The maximum ratings related to soldering conditions are also marked on the inner box label. ECOPACK is an ST trademark. ECOPACK specifications are available at: [www.st.com](http://www.st.com).

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**SO-8 mechanical data**

Dim.	mm.			inch.		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	1.35		1.75	0.053		0.069
A1	0.10		0.25	0.04		0.010
A2	1.10		1.65	0.043		0.065
B	0.33		0.51	0.013		0.020
C	0.19		0.25	0.007		0.010
D	4.80		5.00	0.189		0.197
E	3.80		4.00	0.150		0.157
e		1.27			0.050	
H	5.80		6.20	0.228		0.244
h	0.25		0.50	0.010		0.020
L	0.40		1.27	0.016		0.050
k			8° (max.)			
ddd			0.1			0.04

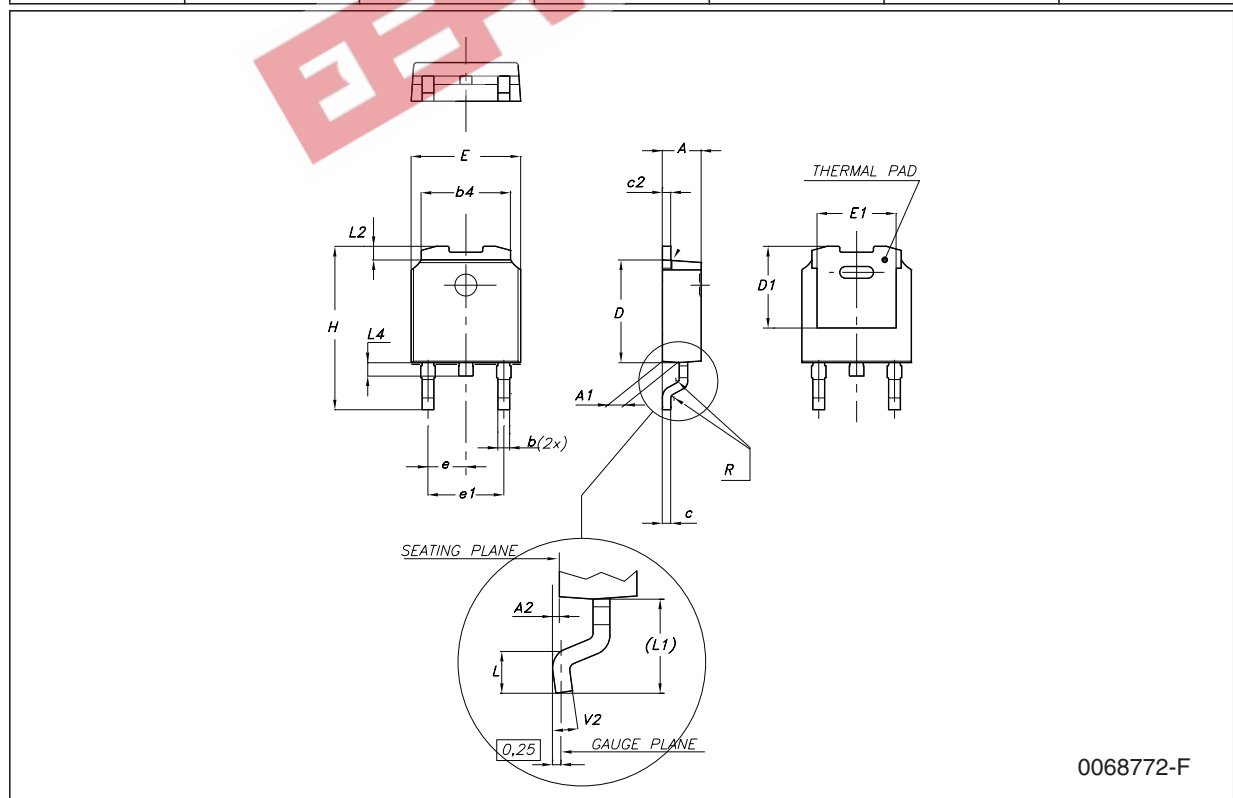


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**DPAK mechanical data**

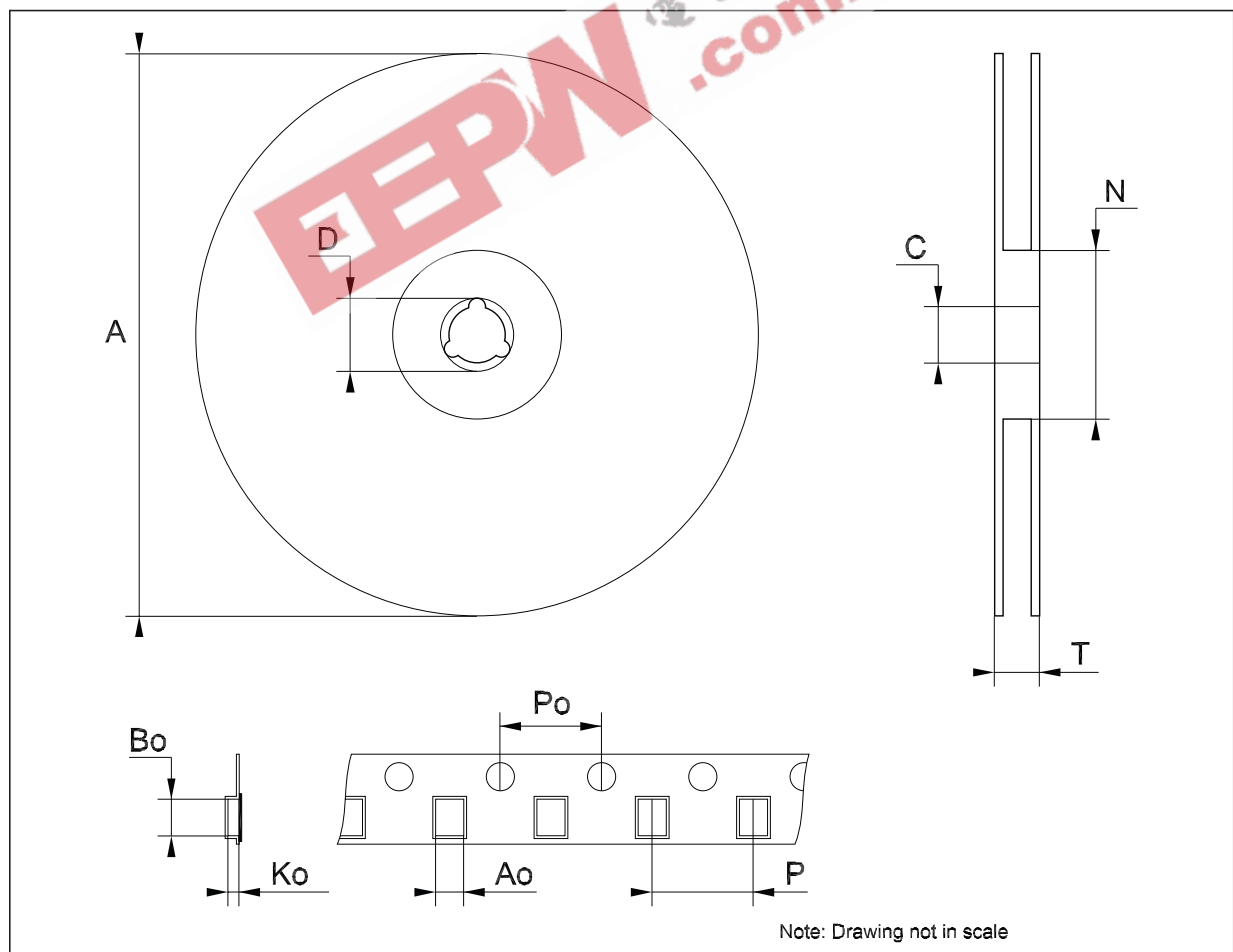
Dim.	mm.			inch.		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	2.2		2.4	0.086		0.094
A1	0.9		1.1	0.035		0.043
A2	0.03		0.23	0.001		0.009
B	0.64		0.9	0.025		0.035
b4	5.2		5.4	0.204		0.212
C	0.45		0.6	0.017		0.023
C2	0.48		0.6	0.019		0.023
D	6		6.2	0.236		0.244
D1		5.1			0.200	
E	6.4		6.6	0.252		0.260
E1		4.7			0.185	
e		2.28			0.090	
e1	4.4		4.6	0.173		0.181
H	9.35		10.1	0.368		0.397
L	1			0.039		
(L1)		2.8			0.110	
L2		0.8			0.031	
L4	0.6		1	0.023		0.039
R		0.2			0.008	
V2	0°		8°	0°		8°



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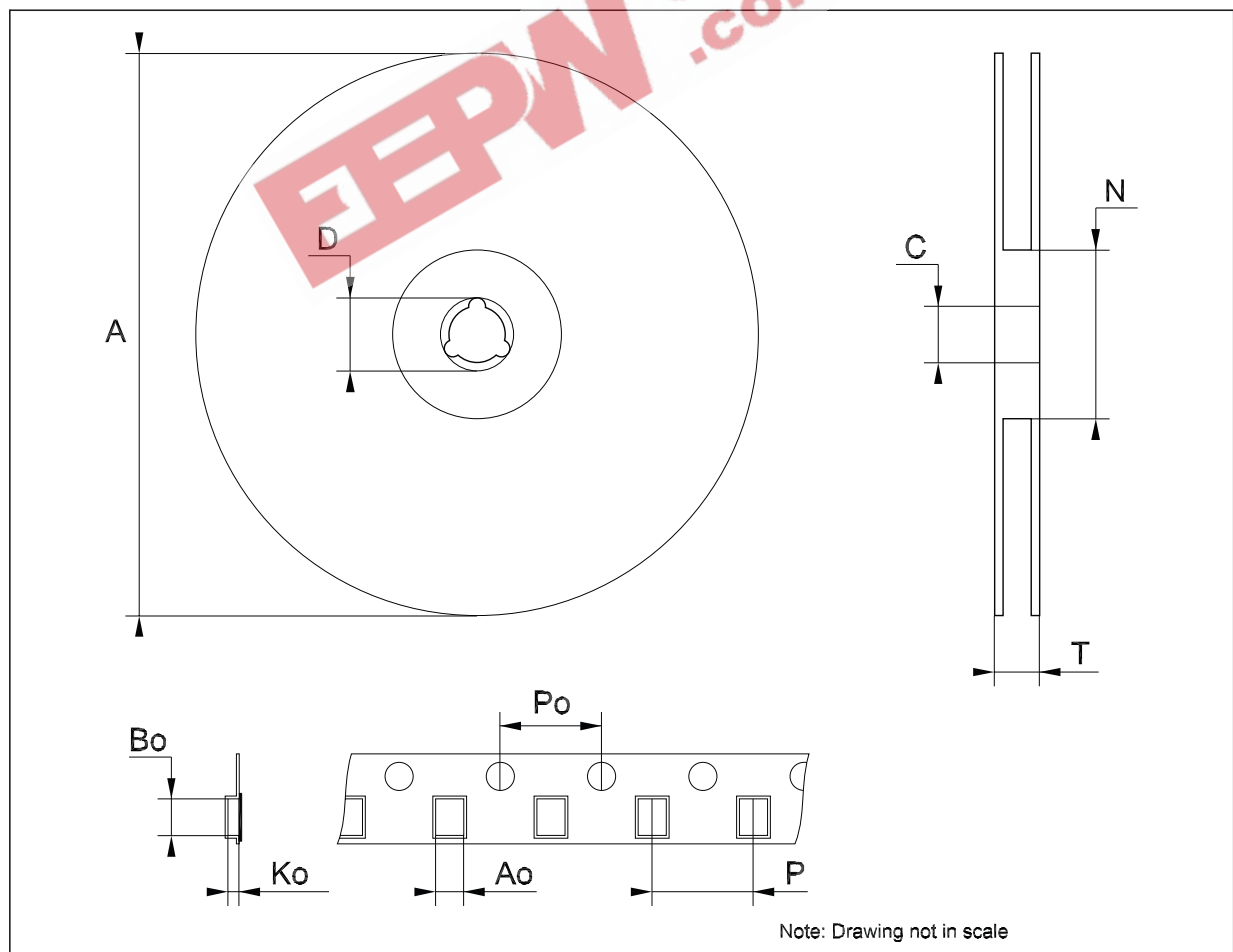
**Tape & reel SO-8 mechanical data**

Dim.	mm.			inch.		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A			330			12.992
C	12.8		13.2	0.504		0.519
D	20.2			0.795		
N	60			2.362		
T			22.4			0.882
Ao	8.1		8.5	0.319		0.335
Bo	5.5		5.9	0.216		0.232
Ko	2.1		2.3	0.082		0.090
Po	3.9		4.1	0.153		0.161
P	7.9		8.1	0.311		0.319



**Tape & reel DPAK-PPAK mechanical data**

Dim.	mm.			inch.		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A			330			12.992
C	12.8	13.0	13.2	0.504	0.512	0.519
D	20.2			0.795		
N	60			2.362		
T			22.4			0.882
Ao	6.80	6.90	7.00	0.268	0.272	0.276
Bo	10.40	10.50	10.60	0.409	0.413	0.417
Ko	2.55	2.65	2.75	0.100	0.104	0.105
Po	3.9	4.0	4.1	0.153	0.157	0.161
P	7.9	8.0	8.1	0.311	0.315	0.319



## 7 Order codes

Table 12. Order codes

Packages		Output voltage
SO-8 (Tape and reel)	DPAK (Tape and reel)	
	KF15BDT-TR	1.5 V
KF25BD-TR	KF25BDT-TR	2.5 V
KF30BD-TR		3 V
KF33BD-TR	KF33BDT-TR	3.3 V
KF40BD-TR	KF40BDT-TR	4 V
KF50BD-TR	KF50BDT-TR	5 V
KF52BD-TR		5.2 V
KF80BD-TR	KF80BDT-TR	8 V

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## 8 Revision history

Table 13. Document revision history

Date	Revision	Changes
06-Jun-2007	9	Order codes has been updated and the document has been reformatted.
14-Dec-2007	10	Modified: <a href="#">Table 12</a> .

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