

## Features

- Output voltage  $5V \pm 2\%$
- Very low current consumption
- Power-on and under voltage reset
- Reset low down to  $V_Q = 1V$
- Very Low- drop voltage
- Short- circuit- proof
- Reverse polarity proof
- Suitable for use in automotive electronics

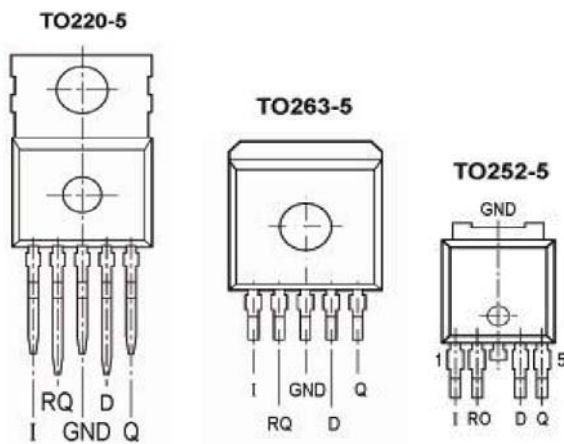
## Applications

- Power Supply

## General Description

The 4275K is a monolithic integrated low-drop voltage regulator in a 5 pin TO- package. An input voltage up to 45V is regulated to  $V_Q = 5.0V$ . The IC is able to drive loads up to 450mA and is short-circuit proof. At over temperature the 4275K is disabled by the incorporated temperature protection. A reset signal is generated for an output voltage  $V_Q$  of typ.4.65V. The delay time can be programmed by the external delay capacitor.

## Package Pin Out



## Ordering Information

Part No.	Package	Packing Options	
		Tube (TU)	Tape & Reel (TR)
LD6337	TO220-5	LD6337T4-TU	LD6337T4-TR
LD6337	TO252-5	LD6337T7-TU	LD6337 T7-TR
LD6337	TO263-5	LD6337T9-TU	LD6337T9-TR

- Package material default is "Green" package.

## Product Marking

LD8888  
SSSSS...

- ◇ Line 1 – "LD" is a fixed character  
8888: product name
- ◇ Line 2 – SSSSS...: lot number



**Absolute Maximum Ratings**

Parameter	Maximum	Unit
Voltage regulator input voltage	45	V
Voltage regulator input current	Internally limited	
Output voltage	16	V
Output current	Internally limited	
Reset output voltage	25	V
Reset output current	5	mA
Reset delay voltage	7	V
Reset delay current	2	mA
Temperature junction temperature	150	°C
Temperature storage temperature	150	°C

The values beyond the boundaries of absolute maximum rating may cause the damage to the device. Functional operation in this context is not implied. Continuous use of the device at the absolute rating level might influence device reliability. All voltages have their reference to device ground.

Note: Maximum ratings are absolute ratings; exceeding any one of these values may cause irreversible damage to the integrated circuit.

**Electrical Characteristics**

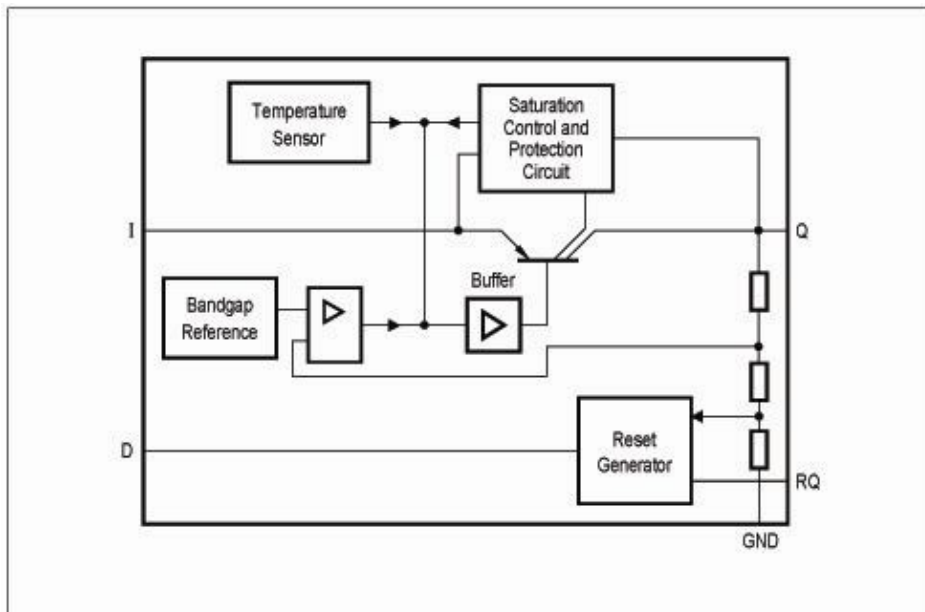
$V_i = 13.5\text{ V}; -40\text{ °C} < T_J < 150\text{ °C}$  (unless otherwise specified)

Parameter	Symbol	Condition	Min	Typ.	Max	Unit
<b>Output</b>						
Output voltage	$V_Q$	$5\text{mA} < I_Q < 400\text{mA}, 6\text{V} < V_i < 40\text{V}$	4.9	5.0	5.1	V
Output current limitation <sup>*1</sup>	$I_Q$	–	450	700	–	mA
Current consumption; $I_Q = I_1 - I_Q$	$I_Q$	$I_Q = 1\text{mA}, T_J = 25\text{°C}$	–	150	200	$\mu\text{A}$
		$I_Q = 1\text{mA}, T_J \leq 85\text{°C}$	–	150	220	
		$I_Q = 250\text{mA}$	–	5	10	mA
		$I_Q = 400\text{mA}$	–	12	22	
Drop voltage <sup>*1</sup>	$V_{dr}$	$I_Q = 300\text{mA}, V_{dr} = V_i - V_Q$	–	250	500	mV
Load regulation	$\Delta V_{QLOAD}$	$I_Q = 5\text{mA to } 400\text{mA}$	–	15	30	mV
Line regulation	$\Delta V_{QLINE}$	$\Delta V_i = 8\text{V to } 32\text{V}, I_Q = 5\text{mA}$	-15	5	15	mV
Power supply ripple rejection	PSRR	$F_r = 100\text{Hz}, V_r = 0.5\text{Vpp}$	–	60	–	dB
Temperature output Voltage drift	$dV_Q/dT$	–	–	0.5	–	mV/K
<b>Reset Timing D and Output RQ</b>						
Reset switching threshold	$V_{RT}$	–	4.5	4.65	4.8	V
Reset output low voltage	$V_{RQL}$	$R_{ext} \geq 5\Omega, V_Q > 1\text{V}$	–	0.2	0.4	V
Reset output leakage current	$I_{RQH}$	$V_{RQH} > 4.5\text{V}$	–	0	2	$\mu\text{A}$
Reset charging current	$I_d$	$V_D = 1\text{V}$	3	6	9	$\mu\text{A}$
Upper timing threshold	$V_{DU}$	–	1.5	1.8	2.2	V
Lower timing threshold	$V_{DL}$	–	0.2	0.4	0.7	V
Reset delay time	$T_D$	$C_D = 47\text{nF}$	10	16	22	mS
Reset reaction time	$T_{RR}$	$C_D = 47\text{nF}$	–	0.5	2	$\mu\text{S}$

## Pin Description

Pin No.	Name	Description
1	I	Input, block to ground directly at the IC with a ceramic capacitor
2	RQ	Reset Output, open collector output
3	GND	Ground, pin 3 internally connected to heat sink
4	D	Reset Delay, connected capacitor to GND for setting delay time
5	Q	Output, Block to ground with a $\geq 22\mu\text{F}$ capacitor, $\text{ESR} < 5\Omega$ at 10kHz

## Block Diagram

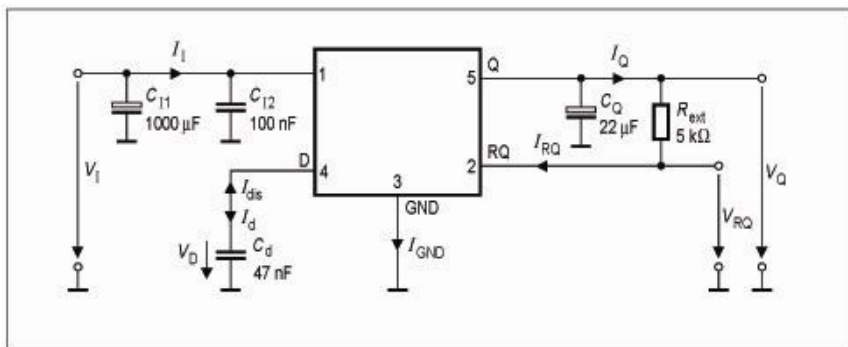


## Circuit Description

The control amplifier compares a reference voltage to a voltage that is proportional to the output voltage and drives the base of the series transistor via a buffer. Saturation control as a function of the load current prevents any oversaturation of the power element. The IC also incorporates a number of internal circuits for protection against:

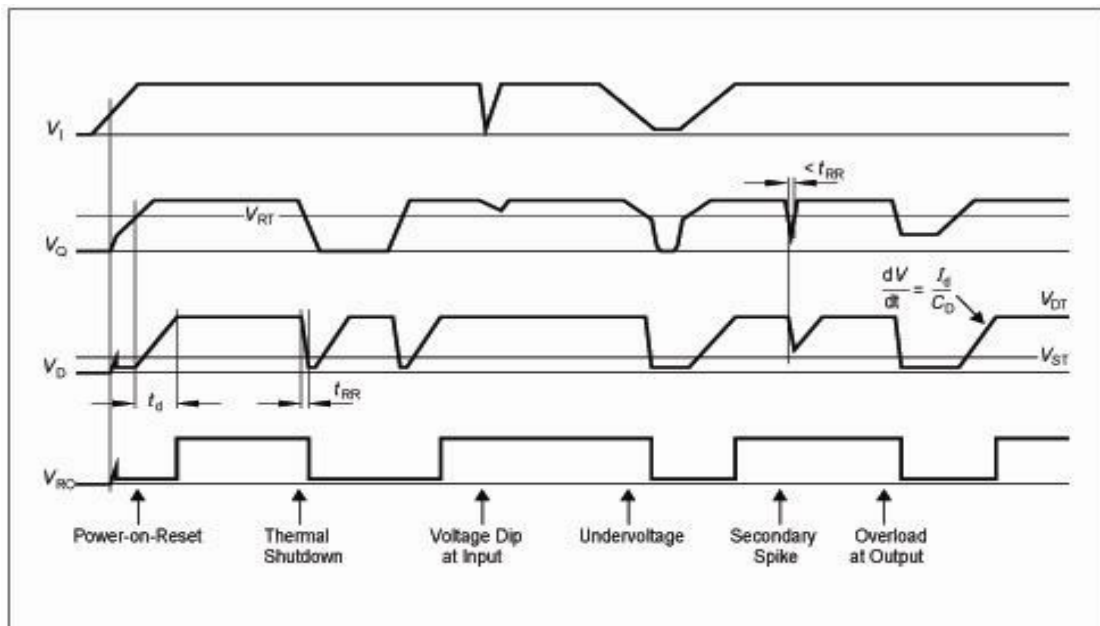
- Overload
- Over-temperature
- Reverse polarity

## Typical Application Circuit



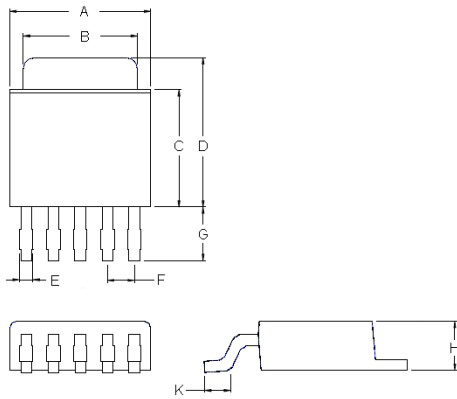
### Information on External Components

The input capacitor  $C_1$  is necessary for compensating line influences. The output capacitor  $C_Q$  is necessary for the stability of the regulation circuit. Stability is guaranteed at values  $C_Q \geq 22\mu\text{F}$  and an ESR of  $\leq 5\Omega$  within the operating temperature range.



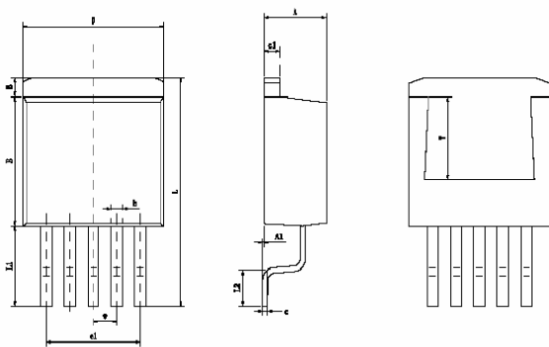
## Package Outline

### TO252-5:



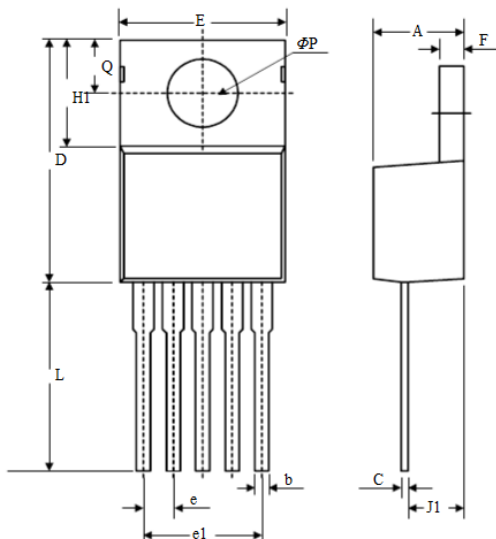
Symbols	Dimensions in Millimeters		
	Minimum	Normal	Maximum
A	6.40	6.50	6.60
B	5.30	5.37	5.46
C	6.00	6.10	6.20
D	7.10	7.20	7.30
E	0.55	0.60	0.65
F	1.22	1.27	1.32
G	2.40	2.65	2.90
H	2.22	2.31	2.40
K	1.42	1.53	1.64

### TO263-5:



Symbol	Dimensions in Millimeters		Dimensions in Inches	
	Min	Max	Min	Max
A	4.470	4.670	0.176	0.184
A1	0.000	0.150	0.000	0.006
B	1.560	1.760	0.061	0.069
b	0.710	0.910	0.028	0.036
c	0.310	0.530	0.012	0.021
c1	1.170	1.370	0.046	0.054
D	9.880	10.180	0.389	0.401
E	8.200	8.600	0.323	0.339
e	1.700TYP		0.067TYP	
e1	6.700	6.900	0.264	0.272
L	15.140	15.540	0.596	0.612
L1	5.080	5.480	0.200	0.216
L2	2.340	2.740	0.092	0.108
V	5.600REF		0.220REF	

### TO220-5:



Symbols	Dimensions in Millimeters		
	Minimum	Normal	Maximum
A	4.07	4.45	4.82
b	0.76	0.89	1.02
C	0.36	0.50	0.64
D	14.22	14.86	15.50
E	9.78	10.16	10.54
e	1.57	1.71	1.85
e1	6.68	6.81	6.93
F	1.14	1.27	1.40
H1	5.46	6.16	6.86
J1	2.29	2.74	3.18
L	13.21	13.97	14.73
ΦP	3.68	3.81	3.94
Q	2.54	2.73	2.92

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