

TECHNICAL DATA

5-V/100mA Low Power Low-Drop Fixed-Voltage REGULATOR WITH LOW CURRENT CONSUMPTION

ILE4264-2

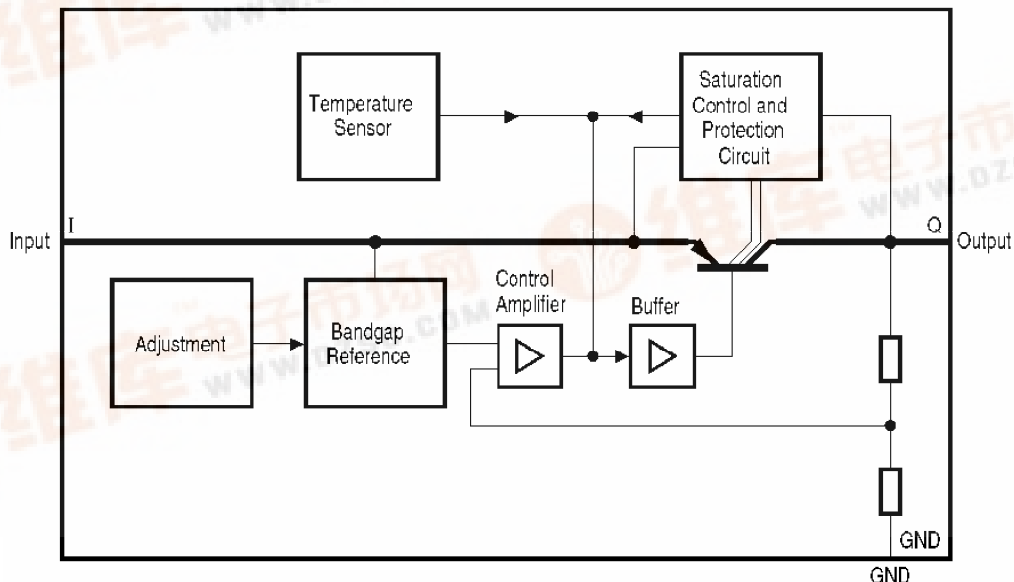
The ILE 4264-2 is a monolithic integrated Low power low-drop fixed voltage regulator 5-V/100mA with low current consumption. The ILE 4264-2 is specially designed to create power source with 5V output voltage, loads up to 100 mA and drop voltage less than 0,5V. The regulator is designed to supply electronic device in automotive applications and some another applications. The ILE 4264-2 is equipped with additional protection against overvoltage of both polarities, load current limitation, short-circuit and over temperature shutdown of output voltage. The IC is supplied in chip (unpackaged) form.



Features

- Output voltage tolerance $5 \pm 3\%$ ($\pm 2\%$ up to 50 mA)
- Low-drop voltage
- Current capability up to 150 mA
- Very low current consumption
- Over temperature protection
- Reverse polarity proof Short-circuit proof
- Junction temperature -40 to $+150^{\circ}\text{C}$
- Suitable for use in automotive electronics
- Short-circuit proof

Block Diagram



Pin description (for P-SOT223-4 package)

Pin	Symbol	Function
01	I	Input voltage; block to ground directly with a ceramic capacitor
03	Q	5-V output voltage; block to ground with a capacitor
02, 04	GND	Ground

Typical electric parameters

($U_I=13,5\text{ V}$, $-40\text{ }^{\circ}\text{C} \leq T_J \leq 125\text{ }^{\circ}\text{C}$, unless specified otherwise)

Parameter, unit of measurement	Symbol	Mode of measurement	Typical value
Power Supply Ripple Rejection, dB	PSRR	$f_r = 100\text{ Hz}$, $U_r = 3\text{ V}$ (peak-to-peak)	68

Absolute Maximum Ratings

Parameter, symbol	Unit	Maximum Ratings		Absolute Maximum Ratings	
		Min	Max	Min	Max
Junction temperature, T_J	$^{\circ}\text{C}$	-40*	125	-40*	150
Storage temperature, T_{stg}	$^{\circ}\text{C}$	-	-	-50	150
Input voltage, U_I	V	6	28	-42	45
Input current, I_I	mA	-	Internally limited	-	Internally limited
Ground pin current, I_{GND}	mA	-	-	50***	-
Output voltage, U_Q	V	4,9	5,1	-0,3***	32***
Output current (pin 3), I_Q	mA	-	Internally limited	-	Internally limited
Thermal Resistances Junction-case, $R_{th\text{ jc}}$, for conventional case P-SOT223-4-1	$^{\circ}\text{C/W}$	-	25**	-	25**
Thermal Resistances Junction-ambient, $R_{th\text{ ja}}$, for conventional case P-SOT223-4-1, - without heat sink	$^{\circ}\text{C/W}$	-	220**	-	220**

* Ambient temperature

** $R_{th\text{ ja}}$ - Thermal Resistances Junction-ambient

*** - Voltage is not applied to pin I

Thermal resistance junction ambient for IC with heat dissipater is calculated by formula:

$$R_{th\text{ ja}} = R_{th\text{ jc}} + R_{th\text{ ca}}, \quad (1)$$

$R_{th\text{ jc}}$ - thermal resistance junction case, $^{\circ}\text{C/W}$.

Application circuit and heat dissipater have to provide $T_J \leq 125\text{ }^{\circ}\text{C}$.

Maximum power P_{tot, B_T} , dissipated by IC for T_A , is calculated by formula:

$$P_{tot} = (125 - T_A) / R_{th\text{ ja}}, \quad (2)$$

125 – maximum permissible operating junction temperature, $^{\circ}\text{C}$

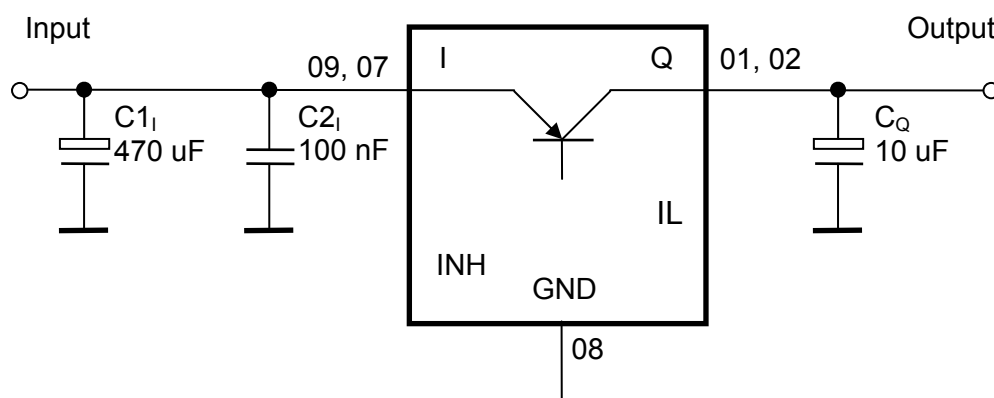
Electric parameters

($U_I=13,5\text{ V}$, $-40\text{ }^{\circ}\text{C} \leq T_J \leq 125\text{ }^{\circ}\text{C}$, unless specified otherwise)

Parameter, unit of measurement	Symbol	Mode of measurement	Typical value		Note
			Min	Max	
Output voltage, V	U_Q	$9\text{ V} \leq U_I \leq 16\text{ V}$ $5\text{ mA} \leq I_Q \leq 50\text{ mA}$	4,9	5,1	
		$6\text{ V} \leq U_I \leq 21\text{ V}$ $5\text{ mA} \leq I_Q \leq 100\text{ mA}$	4,85	5,15	
Maximum output current, mA	I_{Qmax}	$4,8\text{ V} \leq U_Q \leq 5,2\text{ V}$	150	500	
Consumption current, mA, $I_q = I_I - I_Q$	I_q	$I_Q=0,1\text{ mA}$, ($T_J \leq 85^{\circ}\text{C}$)	-	0,06	
		$I_Q = 0,1\text{ mA}$	-	0,07	
		$I_Q = 50\text{ mA}$	-	4	
Drop-out voltage, V	U_{Dr}	$I_Q = 100\text{ mA}$	-	0,5	1
Load regulation, mV	$\Delta U_{Q(I)}$	$1\text{ mA} \leq I_Q \leq 100\text{ mA}$ $U_I = 13,5\text{ V}$	-	90	
Line regulation, mV	$\Delta U_{Q(U)}$	$6\text{ V} \leq U_I \leq 28\text{ V}$ $I_Q = 1\text{ mA}$	-	30	

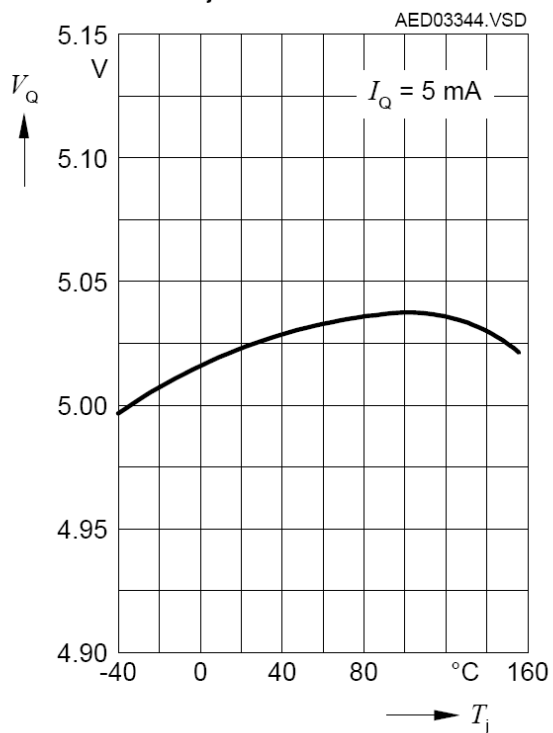
Notes
1 Drop voltage $U_{Dr} = U_I - U_Q$ (measured when the output voltage V_Q has dropped 100 mV from the nominal value obtained at $V_I = 13.5\text{ V}$).

ILE4264-2 Application Circuit

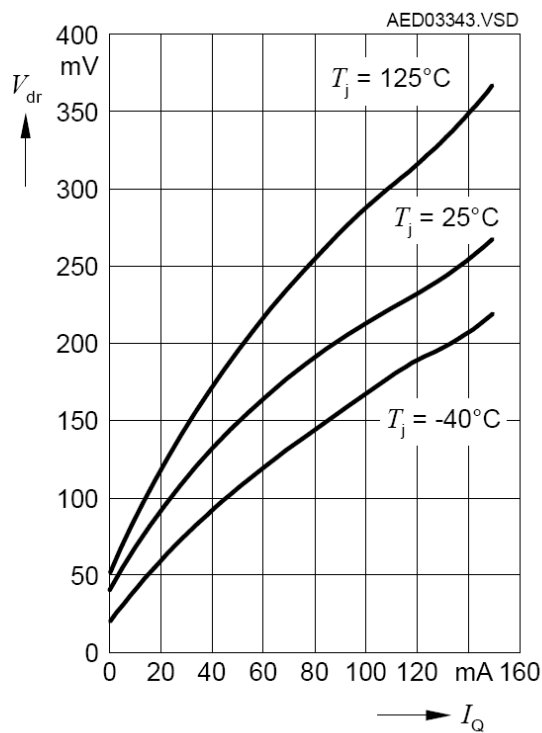


Typical Performance Characteristics

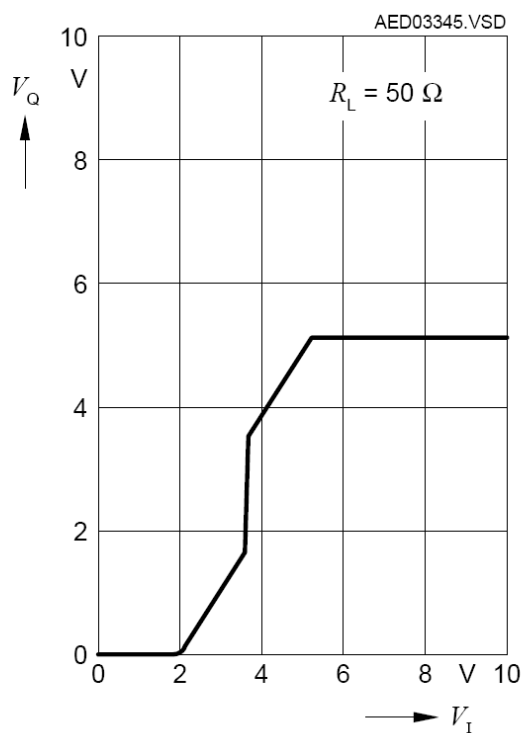
Output Voltage V_Q versus Temperature T_j



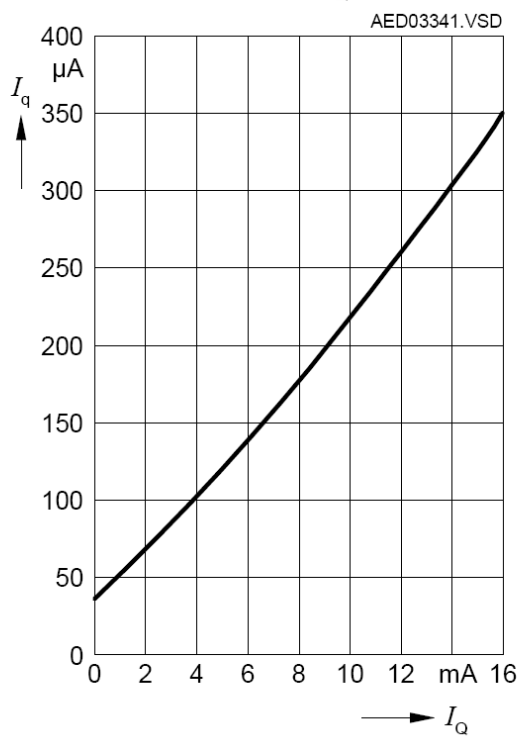
Drop Voltage V_{dr} versus Output Current I_Q



Output Voltage V_Q versus Input Voltage V_I



Current Consumption I_q
versus Output Current I_Q



Current Consumption I_q
versus Output Current I_Q

