ACE5265RT

500mA High PSRR, Low Noise LDO

Description

The ACE5265RT series are highly precise, low noise, positive voltage LDO regulators manufactured using CMOS processes. The series achieves high ripple rejection and low dropout and consists of a standard voltage source, an error correction, current limiter and a phase compensation circuit plus a driver transistor. External output feedback, customers can easily get the required voltage. In order to make the load current does not exceed the current capacity of the output transistor, built-in over- current protection, over temperature protection and short circuit protection. The internal op amp with advanced structure, the output capacitor can be omitted.

Features

- Input Voltage: 2V~6.5V
- Adjustable Output Voltage: 1V~3.3V
- Low Power Consumption: 50μA (Typ.)
- Low Voltage Drops: 100mV@50mA
- Standby Current: 0.1uA
- Low Temperature Coefficient
- Active Discharge Function
- High Ripple Rejection: 65dB@1KHz (Typ.)
- Output Voltage Accuracy: Tolerance ±2%
- Build-in Enable / Output Current Limit
- SOT23-5 Package

Application

- Cellular Handsets
- Battery-Powere
- Wi-Fi Router
- Hand-Held Instruments
- Portable Information Application
- Adjustable power supply

Absolute Maximum Ratings (1)(2)

Item	Min	Max	Unit
V_{IN} voltage	2.0	7.0	V
V_{OUT} voltage	1.0	3.3	V
Output Current (3)	600		mA
Power dissipation (4)	Internally Limited		
Operating Ambient Temperature	-40	85	°C
Maximum junction temperature		150	°C
Storage temperature, Tstg	–50	85	°C
Lead Temperature (Soldering, 10sec.)		260	°C

Note (1): Exceeding these ratings may damage the device.

Note (2): The device is not guaranteed to function outside of its operating conditions.

Note (3): $I_{OUT}=P_D/(V_{IN}-V_{OUT})$

Note (4): The maximum allowable power dissipation is a function of the maximum junction temperature, $T_{J(MAX)}$, the junction-to-ambient thermal resistance, $R_{\theta JA}$, and the ambient temperature, T_A. The maximum allowable power dissipation at any ambient temperature is calculated using: $P_{D(MAX)} = (T_{J(MAX)} - T_A)/R_{\theta JA.}$ Exceeding the maximum allowable power dissipation causes excessive die temperature, and the regulator goes into thermal shutdown. Internal thermal shutdown circuitry protects the device from permanent damage. Thermal shutdown engages at T_J=155°C (typical) and disengages at T_J= 140°C (typical).

Recommended Operating

Item	Min	Max	Unit
Operating junction temperature (1)	–40	125	°C
Operating temperature range	-40	85	°C
Input voltage VIN	2	6.5	V
Output current (ADJ)	0	500	mA

Note (1): All limits specified at room temperature (T_A = 25°C) unless otherwise specified. All room temperature limits are 100% production tested. All limits at temperature extremes are ensured through correlation using standard Statistical Quality Control (SQC) methods. All limits are used to calculate Average Outgoing Quality Level (AOQL).

Thermal Information

Item	Description	Value	Unit
$R_{\theta JA}$	Junction-to-ambient thermal resistance (1)(2)	230	°C/W
$R_{\theta JC(top)}$	Junction-to-case (top) thermal resistance	152	°C/W
$R_{\theta JB}$	Junction-to-board thermal resistance	56	°C/W
ψ_{JT}	Junction-to-top characterization parameter	31	°C/W
ψ_{JB}	Junction-to-board characterization parameter	55	°C/W

Note (1): The package thermal impedance is calculated in accordance to JESD 51-7.

Note (2): Thermal Resistances were simulated on a 4-layer, JEDEC board

Ordering Information

ACE5265RT XX+ H

- H: Halogen - free
- +: Pb - free
- XX: BN: SOT-23-5

Notes

ACE does not assume any responsibility for use as critical components in life support devices or systems without the express written approval of the president and general counsel of ACE Technology Co., LTD. As sued herein:

1. Life support devices or systems are devices or systems which, (a) are intended for surgical implant into the body, or (b) support or sustain life, and shoes failure to perform when properly used in accordance with instructions for use provided in the labeling, can be reasonably expected to result in a significant injury to the user.
2. A critical component is any component of a life support device or system whose failure to perform can be reasonably expected to cause the failure of the life support device or system, or to affect its safety or effectiveness.