

SANYO

No.2622B

L78LR05**150mA, 5V 5-Pin Voltage Regulator
with Reset Function****Overview**

The L78LR05 is a voltage regulator IC that performs the reset signal generating function when the power supply of a microcomputer system is turned ON/OFF. The L78LR05 is convenient for battery backup system at the time of power failure. The reset threshold voltage V_{RT} is ranked as shown below.

V_{RT} rank	B	C	D	E	F	G	H
V_{RT} (V)	4.8	4.5	4.2	3.9	3.6	3.3	3.0

Applications

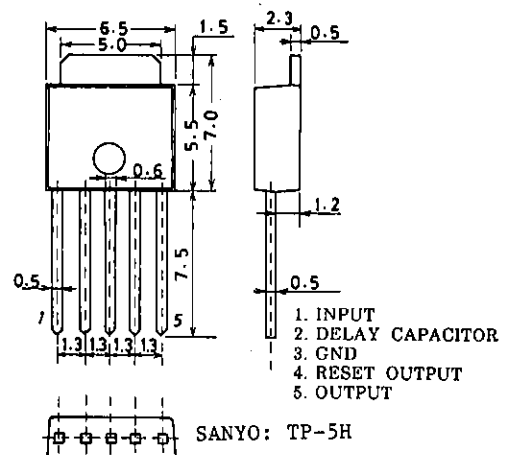
- Prevention of malfunction that may occur when the power supply of a microcomputer is turned ON/OFF.
- Measures taken against abnormal operations that may occur at the time of instantaneous break of power supply
- Direct battery backup for SRAM

Features

- 5V, 150mA output
- Capable of generating a microcomputer reset signal
- No battery-regulator switching circuit required at the battery backup mode (Output leakage current: $2\mu\text{A}$ or less)
- An external capacitor can be used to set the reset output delay time.
- Applicable to the power supply of CMOS, NMOS microcomputers
- Especially suited for use as an on-board regulator for a microcomputer system
- Small-sized power package TP-5H permitting the equipment to be made compact
- The allowable power dissipation can be increased by being surface-mounted on the board.
- Capable of being mounted in a variety of methods because of various lead forming versions available
- On-chip protectors (overcurrent limiter, ASO protector, thermal protector)

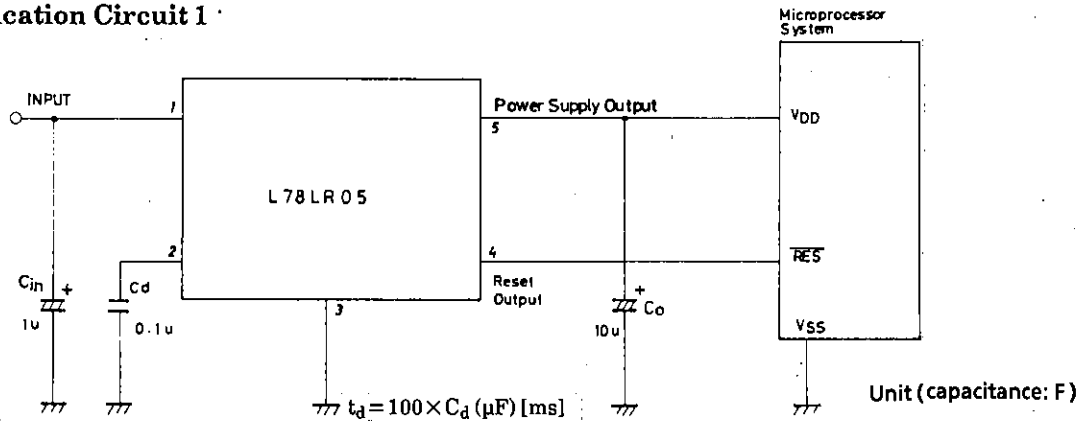
Package Dimensions
(unit: mm)

3103



L78LR05

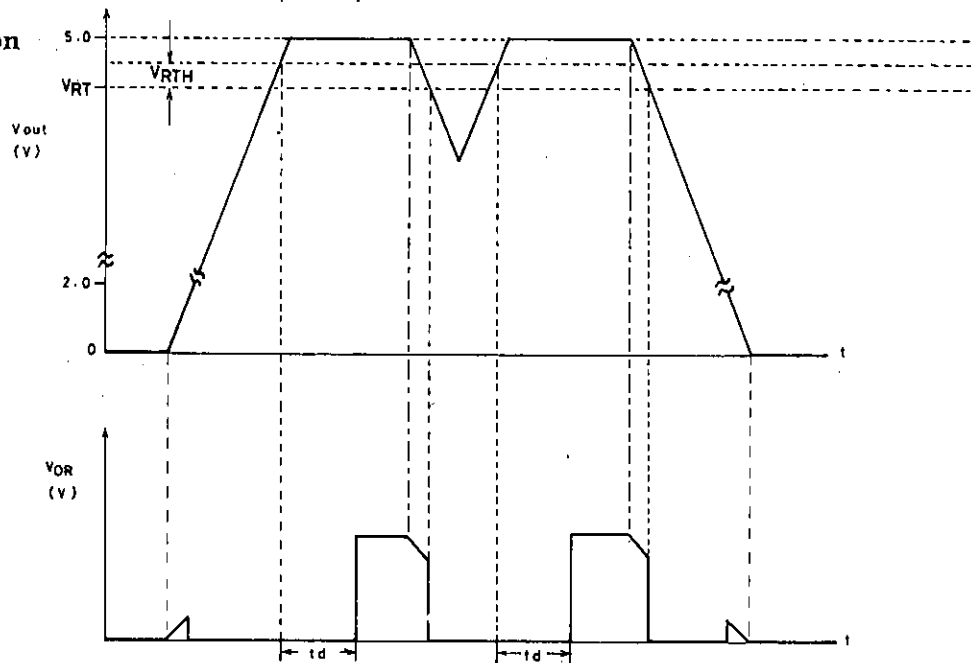
Sample Application Circuit 1



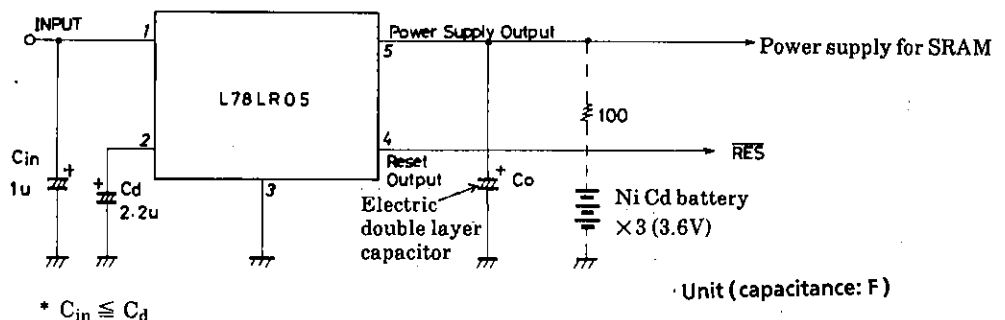
Note 1: When the capacitance of C_d is large, the capacitor may not discharge completely, causing t_d to be made shorter than a set value. If this is a problem, either connect a high speed diode (DS442) between pin2 (anode side) and pin5 (cathode side) or ensure an adequate discharge time by using values for capacitors C_{in} and C_d such that $C_{in} > C_d$.

Note 2: If a pull-up resistor is connected to the reset output pin externally, it is possible to cause a sink current up to 4mA to flow.

Reset Operation



Sample Application Circuit 2 (Direct battery backup)



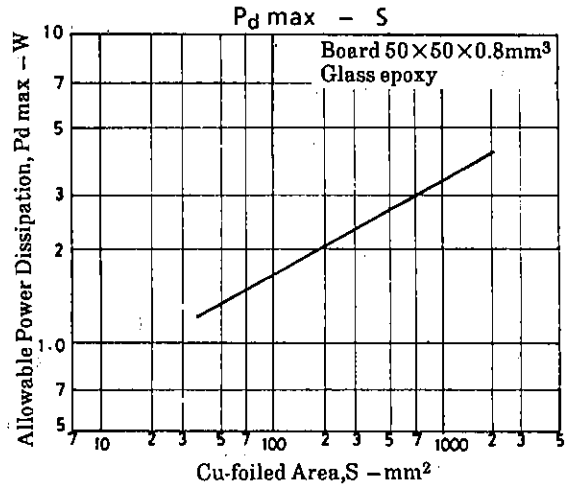
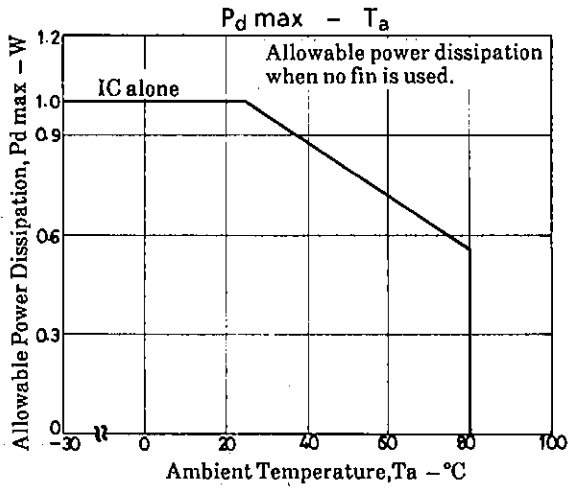
Since the leakage current at the output pin (pin5) of the L78LR05 is so low as $2\mu A$ or less, a backup circuit can be implemented by connecting an electric double layer capacitor (super capacitor: NEC, gold capacitor: Matsushita Electric) or a Ni Cd battery direct to the output pin. Since a reverse blocking diode, which has been so far connected to the output pin, is not required, a regulated power-supply voltage can be supplied to a load during the steady-state operation, without voltage drop caused by the diode and effects of temperature characteristics, current characteristics of the diode. No battery-regulator switching circuit is required at the battery backup start mode.

Note 3: The capacitance of reset output signal delay capacitor C_d must exceed that of input capacitor C_{in} . If the capacitance of C_d is small, a reset pulse signal may be generated once when the main power source is turned off (at the battery backup start mode).

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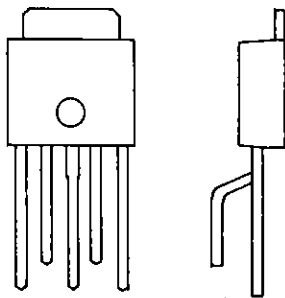
Allowable Power Dissipation

The allowable power dissipation is 1.0W ($T_a=25^\circ\text{C}$) with no fin attached. When the L78LR05 is surface-mounted on a hybrid IC board or printed circuit board, a high allowable power dissipation can be obtained, though it is placed in a small-sized package. Shown below is the relationship between the Cu-foiled area and the allowable power dissipation when the L78LR05 is surface-mounted on a glass epoxy board ($50 \times 50 \times 0.8\text{mm}^3$).

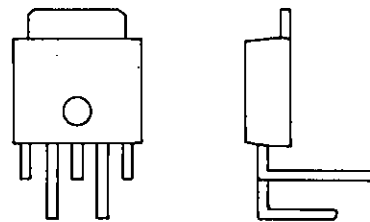


* The measured values of P_d represent the values measured when solder on the Cu-foiled area is all wet.

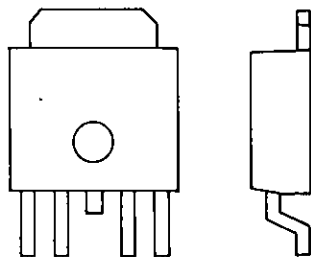
Lead Formings



MA forming

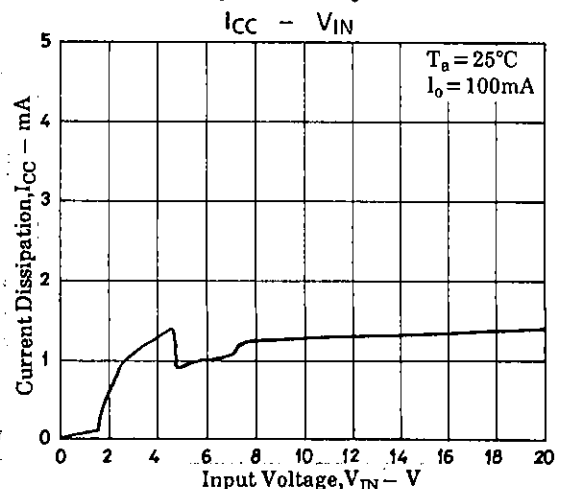
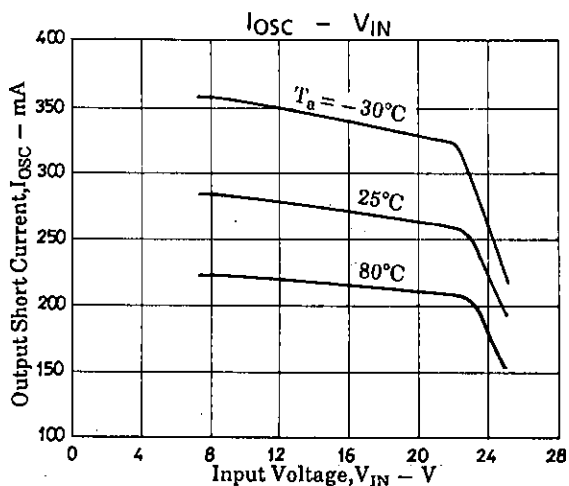
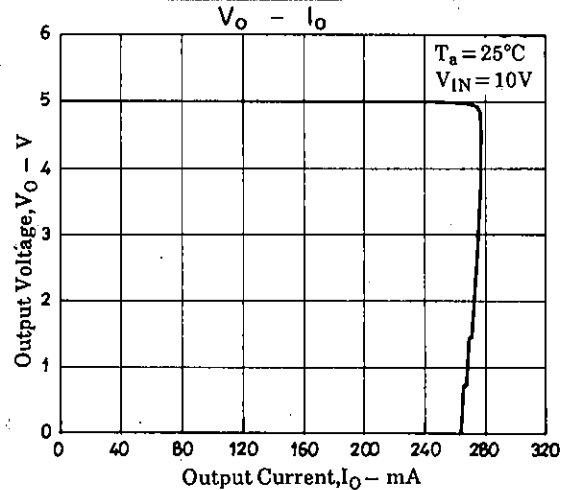
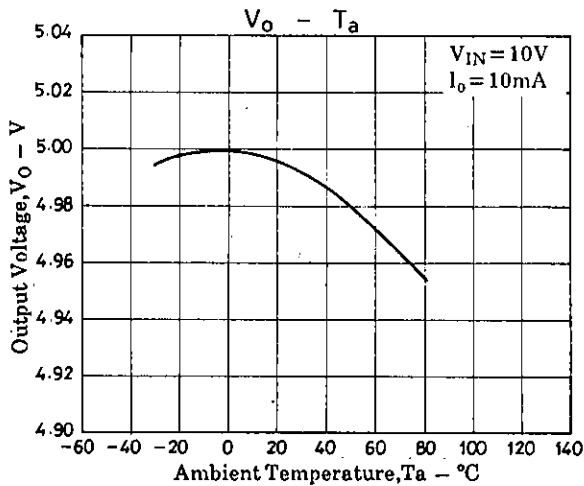
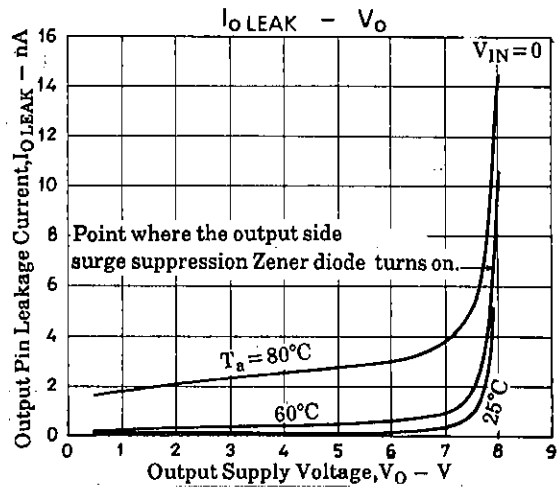
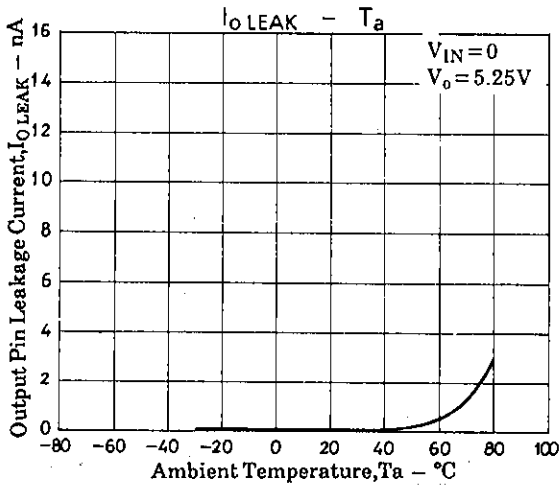
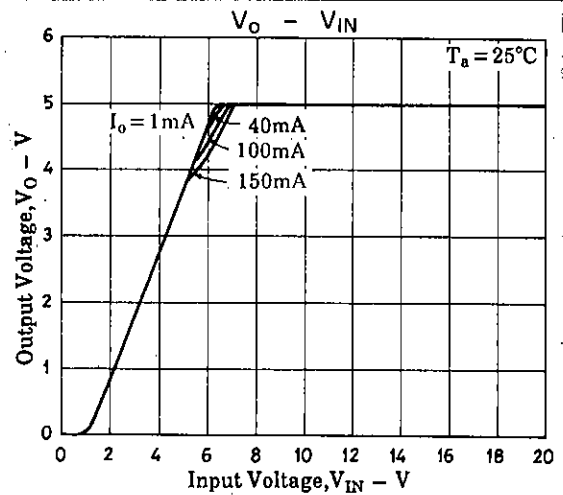
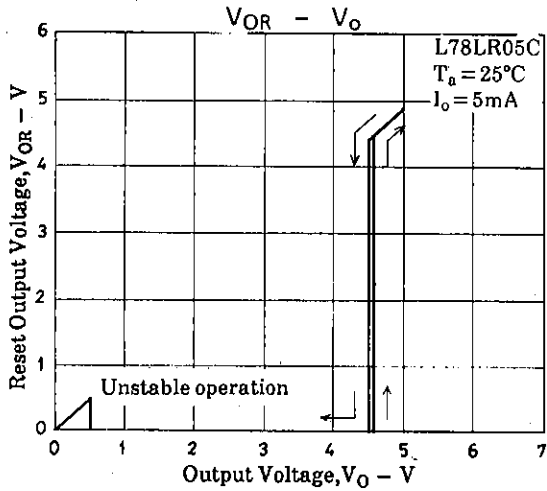


LR forming

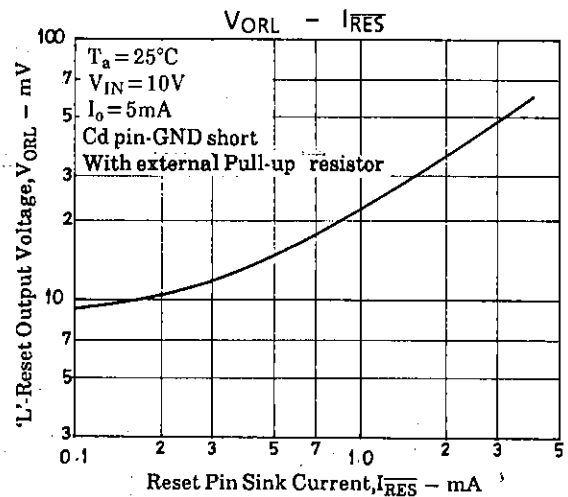
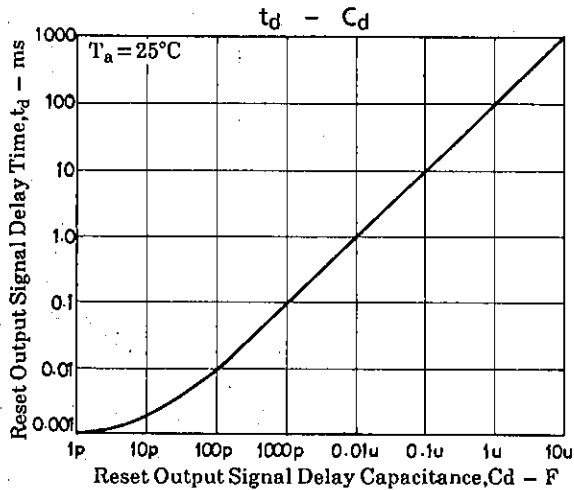
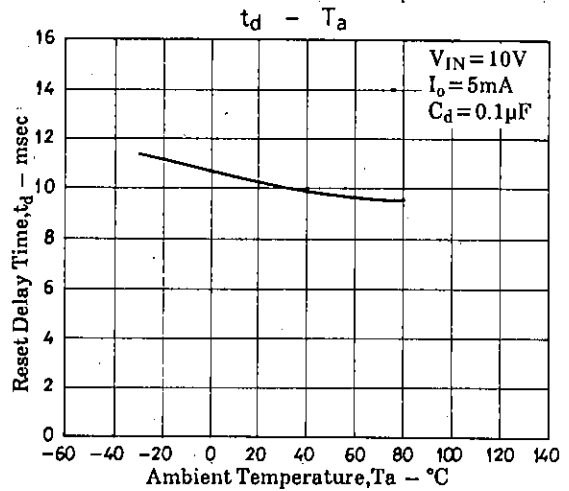
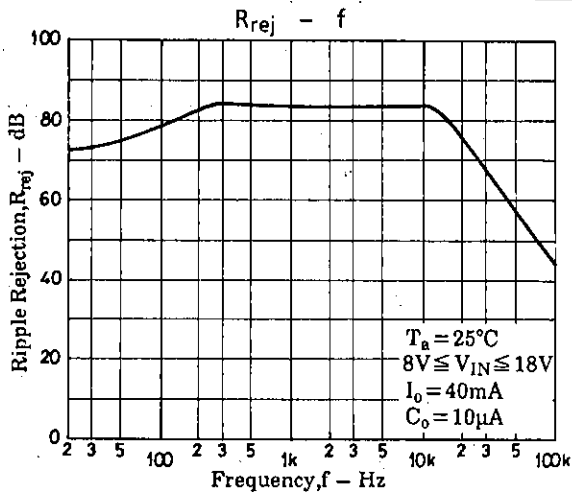


FA forming

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