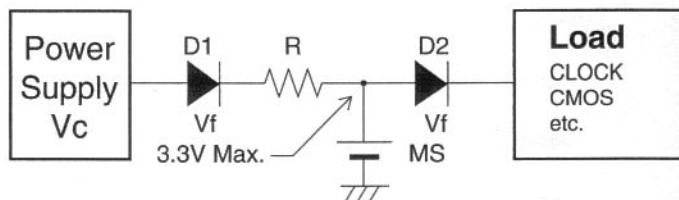


MS Lithium Rechargeable Battery <3V Type>

CHARGING CIRCUIT

◆ Standard Charging Circuit Settings List for Using MS Rechargeable Battery with Constant Voltage and Constant Resistance.



Charging Voltage : 3.3V (3.1V) Max.

Charging current limiting resistance : R

D1 : Diode (Item of smaller Vf, Ir is recommendable)

D2 : Using a schottky type of smaller Vf will lead better performance

Type	Charging Voltage Range (V)	Recommendable Charging Current (mA) At Battery Voltage of 3.0V I_c	Maximum Charging Current (mA)	
			At the Battery Voltage of 3.0V I_u	At the Battery Voltage of 0V I_L
MS412F	2.8 to 3.3	0.08max.	0.15	2
MS518S	2.8 to 3.1	0.15 max.	0.3	6
MS614, 614F, 614S	2.8 to 3.3	0.30max.	0.5	10
MS621, 621F	2.8 to 3.3	0.30max.	0.5	10
MS920S	2.8 to 3.3	0.40max.	0.5	10

As for the minimum limit resistance R, please use the value which satisfies the following two formula;

1) In the case a battery voltage is 3.0V:

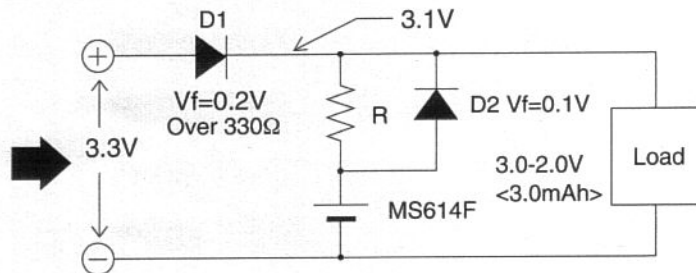
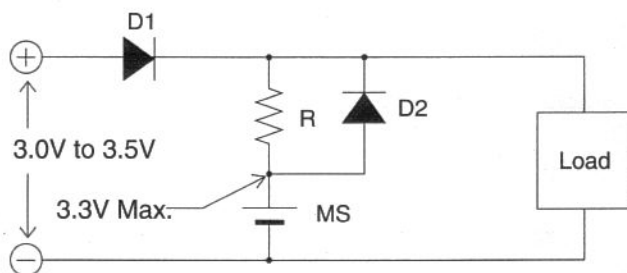
$$R > (V_c - 3.0 - V_f) / I_u$$

2) In the case a battery voltage is 0V:

$$R > (V_c - V_f) / I_L$$

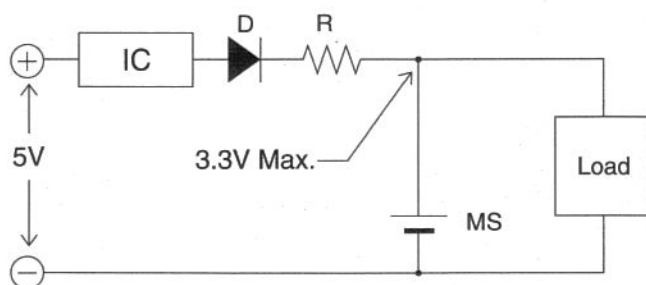
Also for the recommendable limit resistance, please use I_c instead of I_u in the formula 1).

◆ Circuit Example in the case of using 3V for Power Supply.

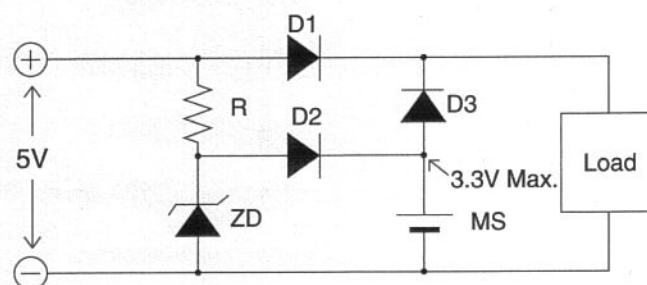


◆ Circuit Example in the case of using 5V for Power Supply.

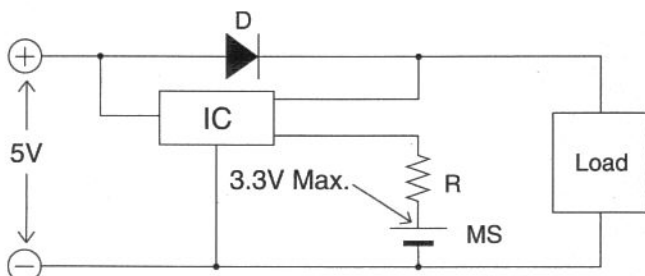
(1) with using voltage regulator IC



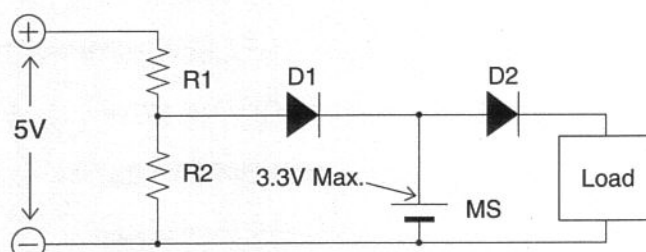
(2) with using Zener diode



(3) with using charge/discharge control IC



(4) with using divided resistance for voltage



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