MITSUBISHI STANDARD LINEAER IC

M6270X,M6271X, M6272X,M6273X,M6274XML/SL

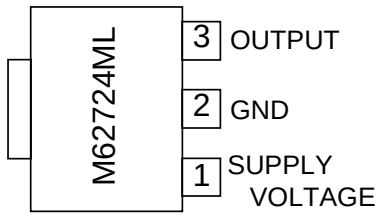
VOLTAGE DETECTING, SYSTEM RESETTING IC SERIES

This product is on during the development, and there is a case rescheduling it future technical standard.

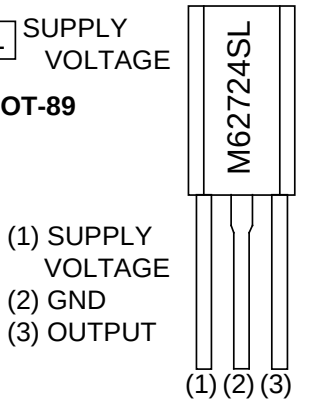
GENERAL DESCRIPTION

The M627XXML/SL is a voltage threshold detector designed for detection of a supply voltage and generation of a system reset pulse for almost all logic circuits such as microprocessor.
It also has extensive applications including battery checking, level detecting and waveform shaping circuits.

PIN CONFIGURATION (TOP VIEW) ex. M62724



Outline SOT-89



Outline TO-92L

FEATURES

- Detecting Voltage M627X2,M627X3 …… 2.87V
  M627X4,M627X5 …… 2.58V
  M627X6,M627X7 …… 2.39V
  M627X8,M627X9 …… 1.72V
- Hysterisis Voltage …… 80mV
- Delay Time M6270X …… 0sec
  M6271X …… 200 µsec
  M6272X …… 50msec
  M6273X …… 100msec
  M6274X …… 200msec
- Few external parts
- Low threshold operating voltage (Supply voltage to keep low-state at low supply voltage) …0.65V(TYP.) at R_L=22kΩ
- Wide supply voltage range …… 1.5V to 7.0V
- Sudden change in power supply has minimal effect on the ICs
- Extra small 3-pin package (3-pin FLAT)
- Built-in long delay time

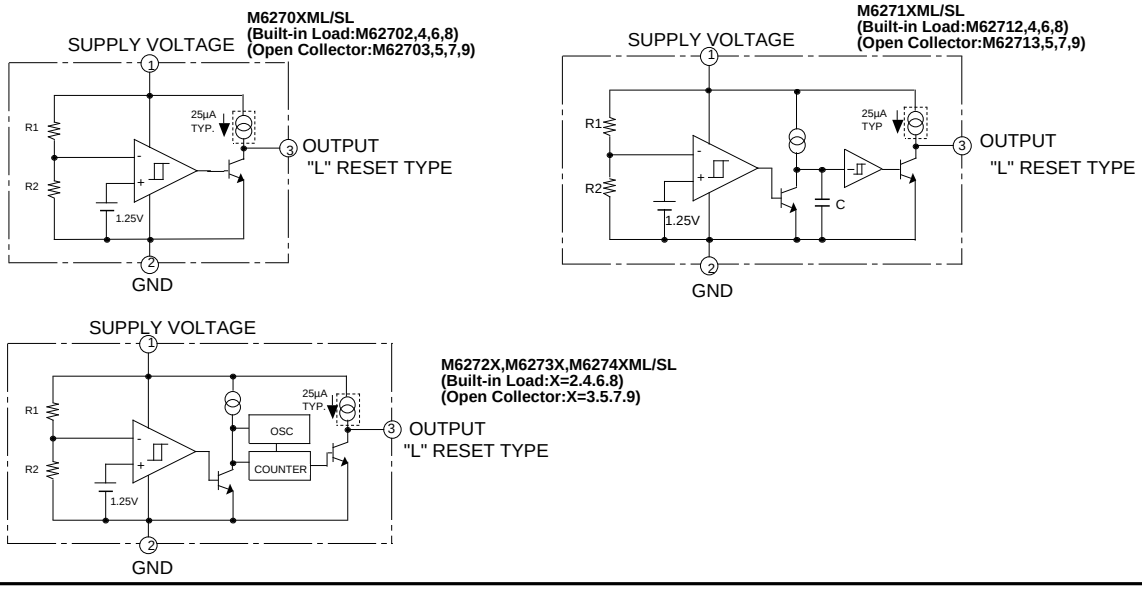
APPLICATION

- Reset pulse generation for almost all logic circuits
- Battery checking, level detecting, waveform shaping circuits
- Delayed waveform generator
- Switching circuit to a back-up power supply
- DC/DC converter
- Over voltage protection circuit

RECOMMENDED OPERATING CONDITION

- Supply voltage range …… 1.5V to 7.0V

BLOCK DIAGRAM



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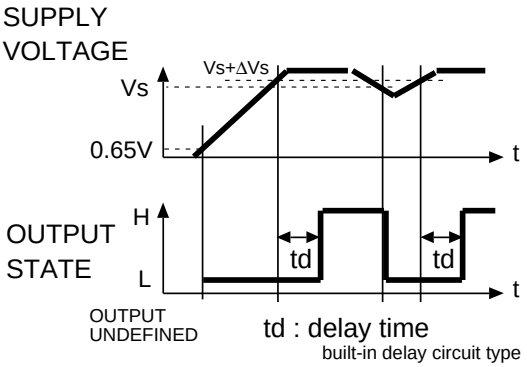
FUNCTION DIAGRAM



OUTPUT FORM

Built-in Load	Open Collector
M627X2	M627X3
M627X4	M627X5
M627X6	M627X7
M627X8	M627X9

ABSOLUTE MAXIMUM RATINGS (Ta=25°C Unless otherwise noted)

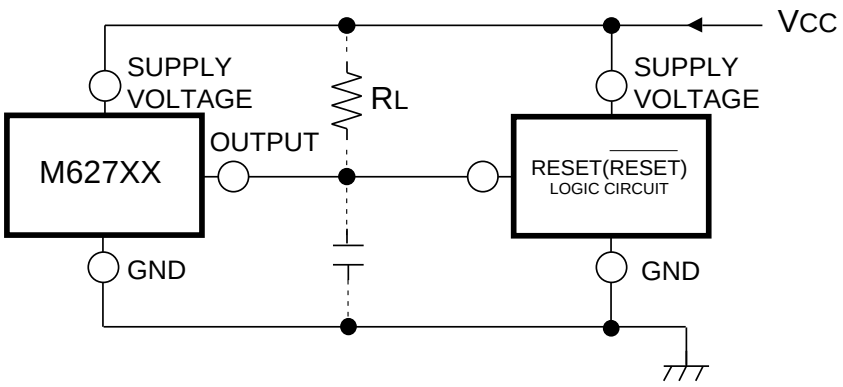
Symbol	Parameter	Test condition		Ratings	Unit
I_{CC}	Supply Voltage			7	V
Isink	Output Sink Current			6	mA
V_O	Output Voltage	Output with constant current load		V_{CC}	V
Pd	Power Dissipation	3pin SIP		700	mW
		3pin FLAT		500	
K_θ	Thermal Derating	Ta≥25°C	3PIN SIP	7	mW/°C
			3PIN FLAT	5	
Topr	Operating Temperature			-30 to +85	°C
Tstg	Storage Temperature			-40 to +125	°C

ELECTRICAL CHARACTERISTICS (Ta=25°C, Unless otherwise noted)

Symbol	Parameter	Test condition			Limits MIN	Limits TYP	Limits MAX	Unit
Vs	Detecting Voltage			M627X2,3	2.74	2.87	3.00	V
				M627X4,5	2.46	2.58	2.70	
				M627X6,7	2.28	2.39	2.50	
				M627X8,9	1.64	1.72	1.80	
ΔVs	Hysterisis Voltage				50	80	110	mV
Vs/ΔT	Detecting Voltage Temperature Coefficient					0.01		%/°C
Icc	Circuit Current	NO OSC &COUNTER		M6270X	100	200	340	µA
				M6271X	120	220	400	
		Built-in OSC & COUNTER X=2,3,4	Vcc=3.3V	M627X2	250	395	560	
				M627X3	225	370	535	
			Vcc=3.0V	M627X4	230	375	540	
				M627X5	205	350	515	
			Vcc=2.7V	M627X6	200	345	510	
				M627X7	175	320	485	
			Vcc=2.0V	M627X8	130	275	440	
				M627X9	105	250	415	
t_{Pd}	Delay Time	Response Time		M6270X		3		µs
		Ta=-30~+85°C		M6271X	80	200	500	
				M6272X	30	50	70	ms
				M6273X	60	100	140	
				M6274X	120	200	280	
Vsat	Output Saturetion Voltage	Vcc=2V,Isink=4mA / M627X8,9:Vcc=1.6V				0.2	0.4	V
V_{OPL}	Threshold Operating Voltage	Minimum supply voltage for operation	R_L=2.2kΩ,Vsat≤0.4V			0.7	0.8	V
			R_L=100kΩVsat≤0.4V			0.6	0.7	
Ioc	Output Load Current	Built-in Load type	Vo=1/2*Vcc		-40	-25	-17	µA
V_{OH}	Output HIGH Voltage	Built-in Load type			Vcc-0.2	Vcc-0.06		V
I_{OH}	Output Leak Current	Open Collector type					30	nA
			Ta=-30~+85°C				1	µA

Example of application circuit

Reset Circuit of M627XX Series



Note 1.
The logic circuit preferably should not have a pull-down resistor,but if one is present, add load resistor RL to overcome the pull-down resistor.