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April 1st, 2010
Renesas Electronics Corporation

Issued by: Renesas Electronics Corporation (<http://www.renesas.com>)

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Not recommended
for new design

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M6270X, M6271X, M6272X, M6273X, M6274XML/SL

Voltage Detecting, System Resetting IC Series

REJ03D0525-0200

Rev.2.00

Nov 03, 2005

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.

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:	200usec
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 $R_L=22k\Omega$
- Wide supply voltage range 1.5V to 7.0V
- Extra small 3-pin package (3-pin FLAT)
- Built-in long delay time

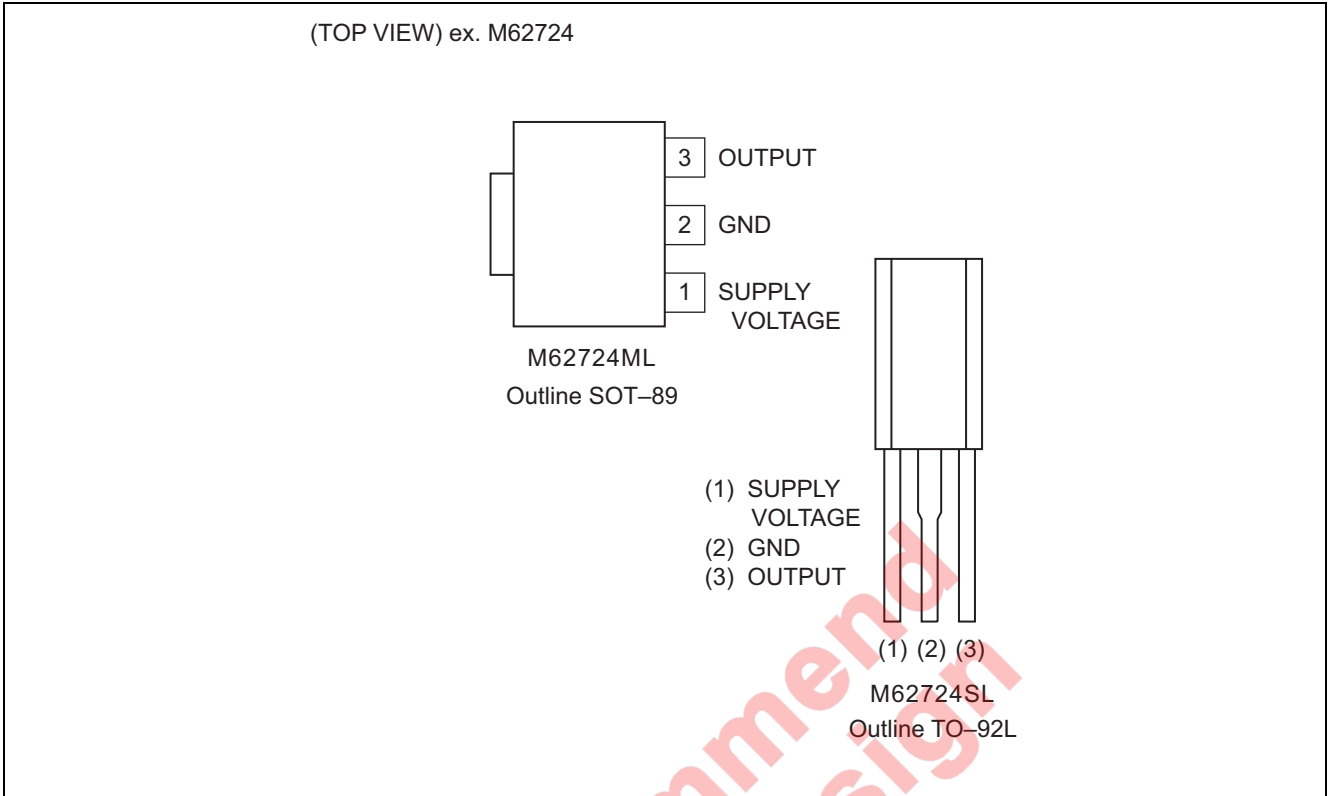
Application

- 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

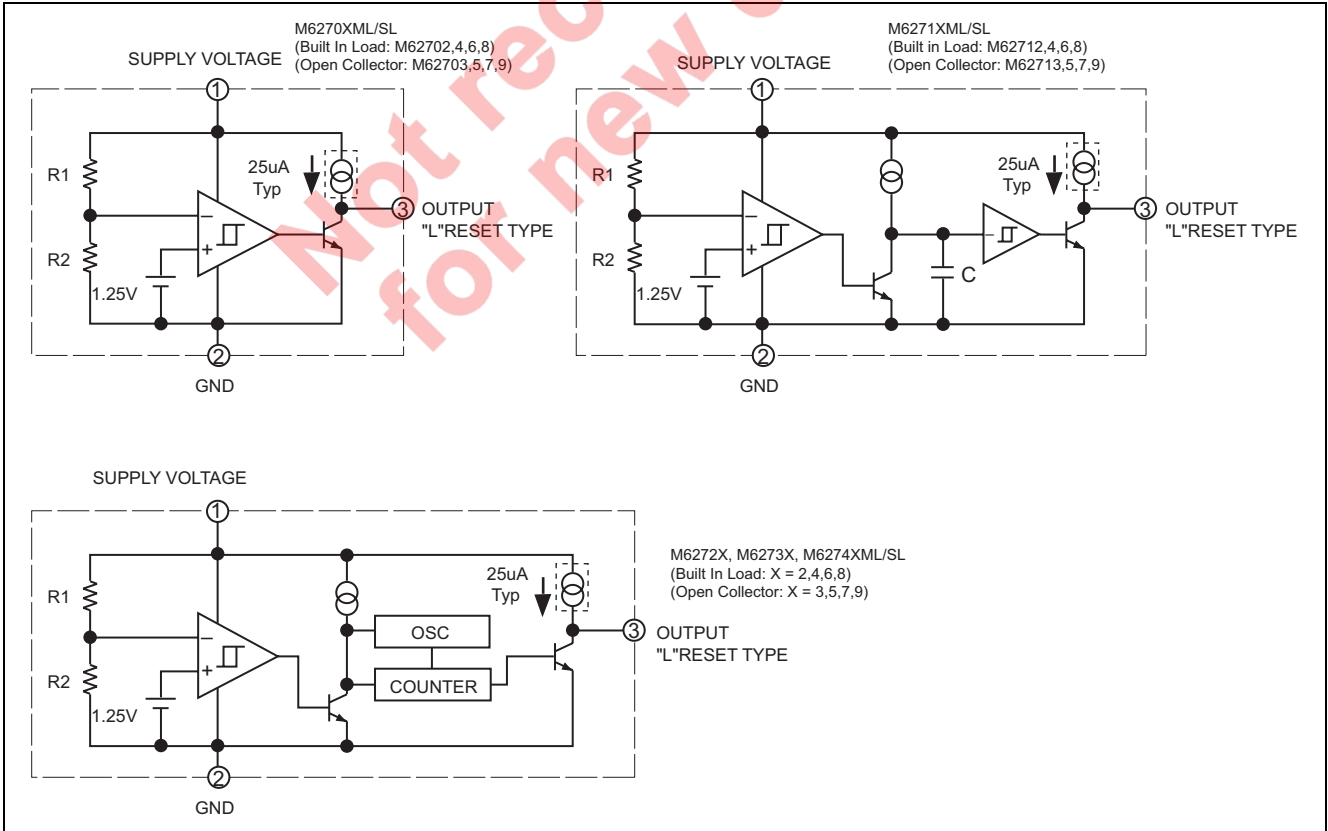
Recommended Operating Condition

- Supply voltage range 1.5V to 7.0V

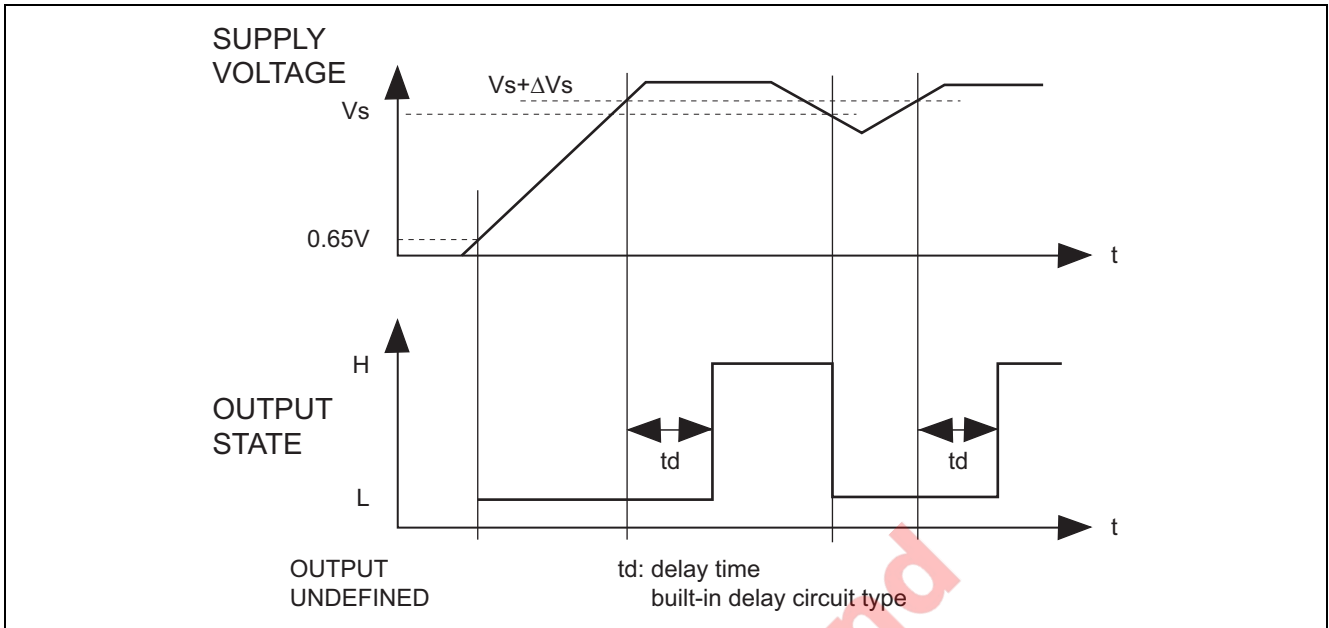
Pin Arrangement



Block Diagram



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)

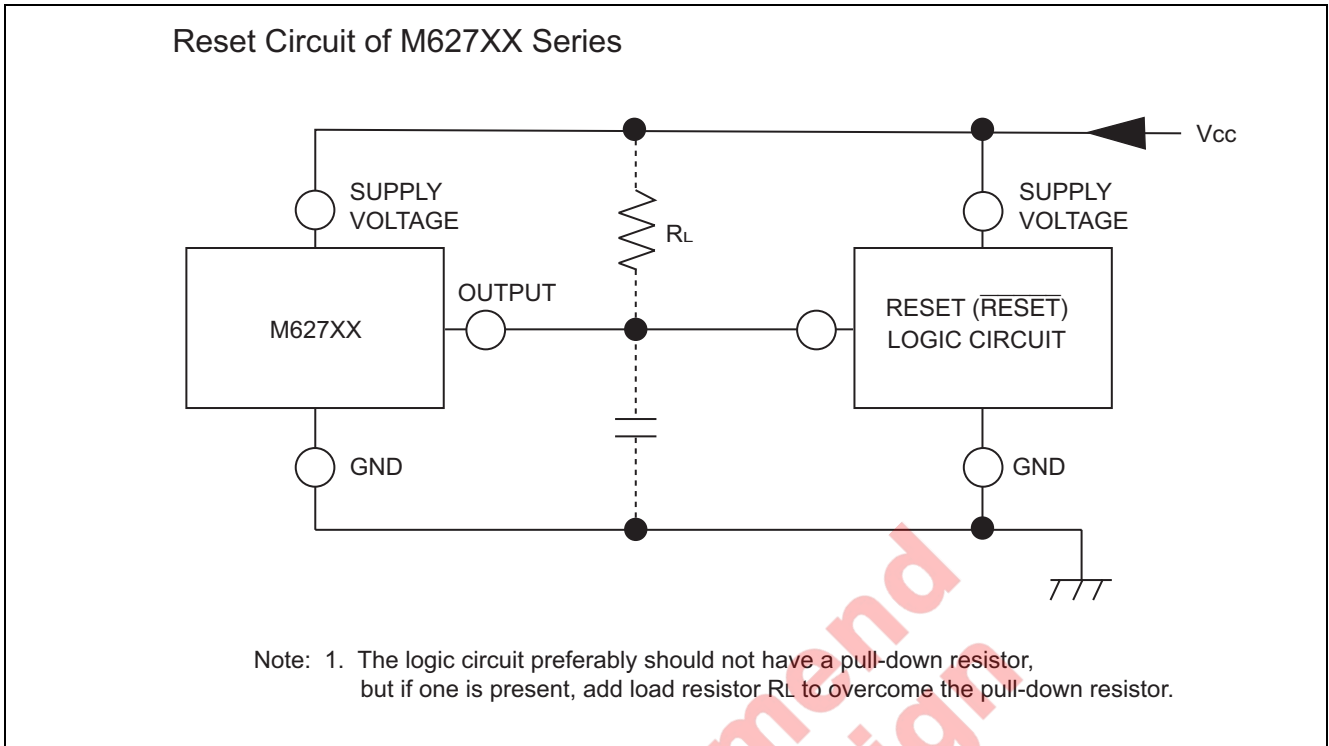
Item	Symbol	Ratings	Unit	Test Conditions	
Supply voltage	V _{CC}	7	V		
Output sink current	I _{sink}	6	mA		
Output voltage	V _O	V _{CC}	V	Output with constant current load	
Power dissipation	P _d	700	mW	3pin SIP	
		500		3pin FLAT	
Thermal derating	K _θ	7	mW/°C	Ta ≥ 25°C	3pin SIP
		5			3pin FLAT
Operating temperature	T _{opr}	-30 to +85	°C		
Storage temperature	T _{stg}	-40 to +125	°C		

Electrical Characteristics

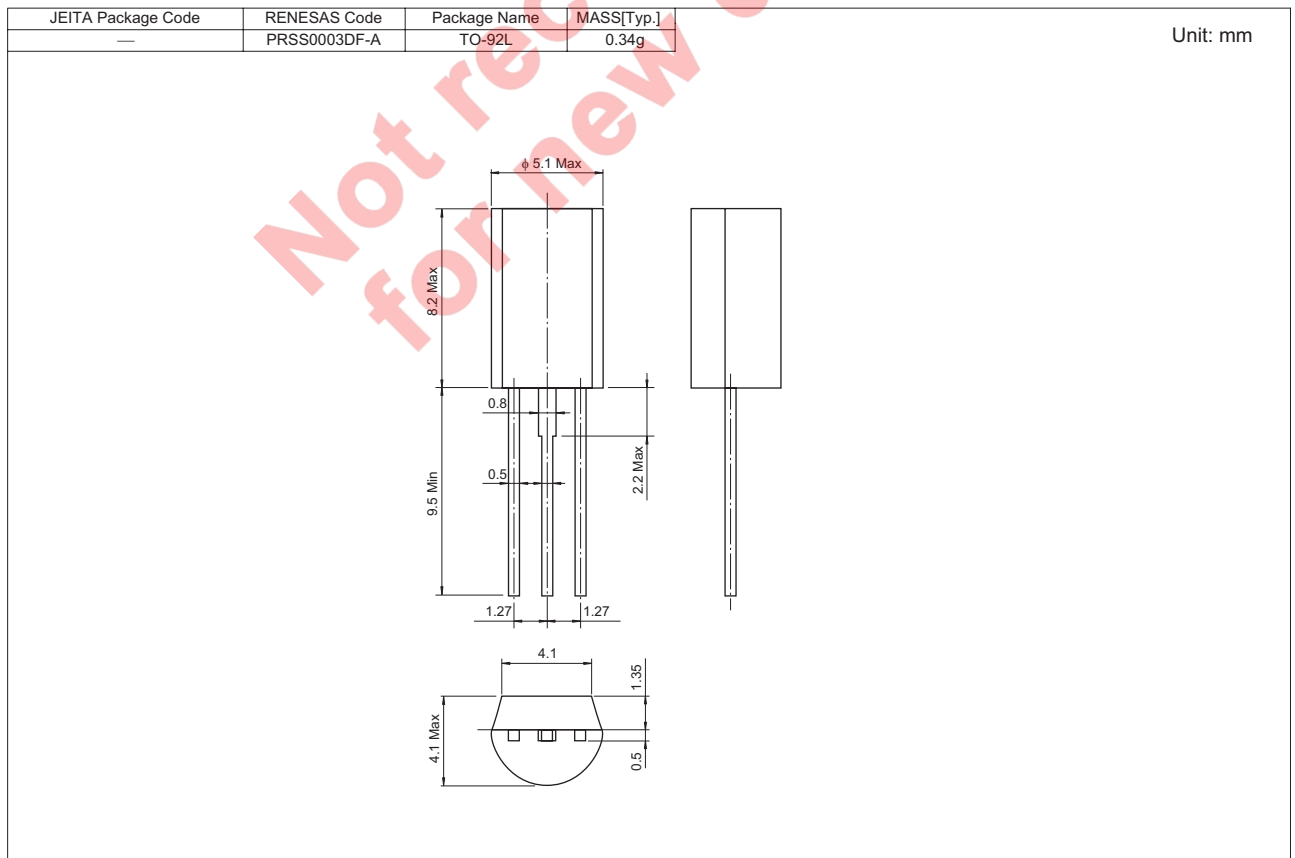
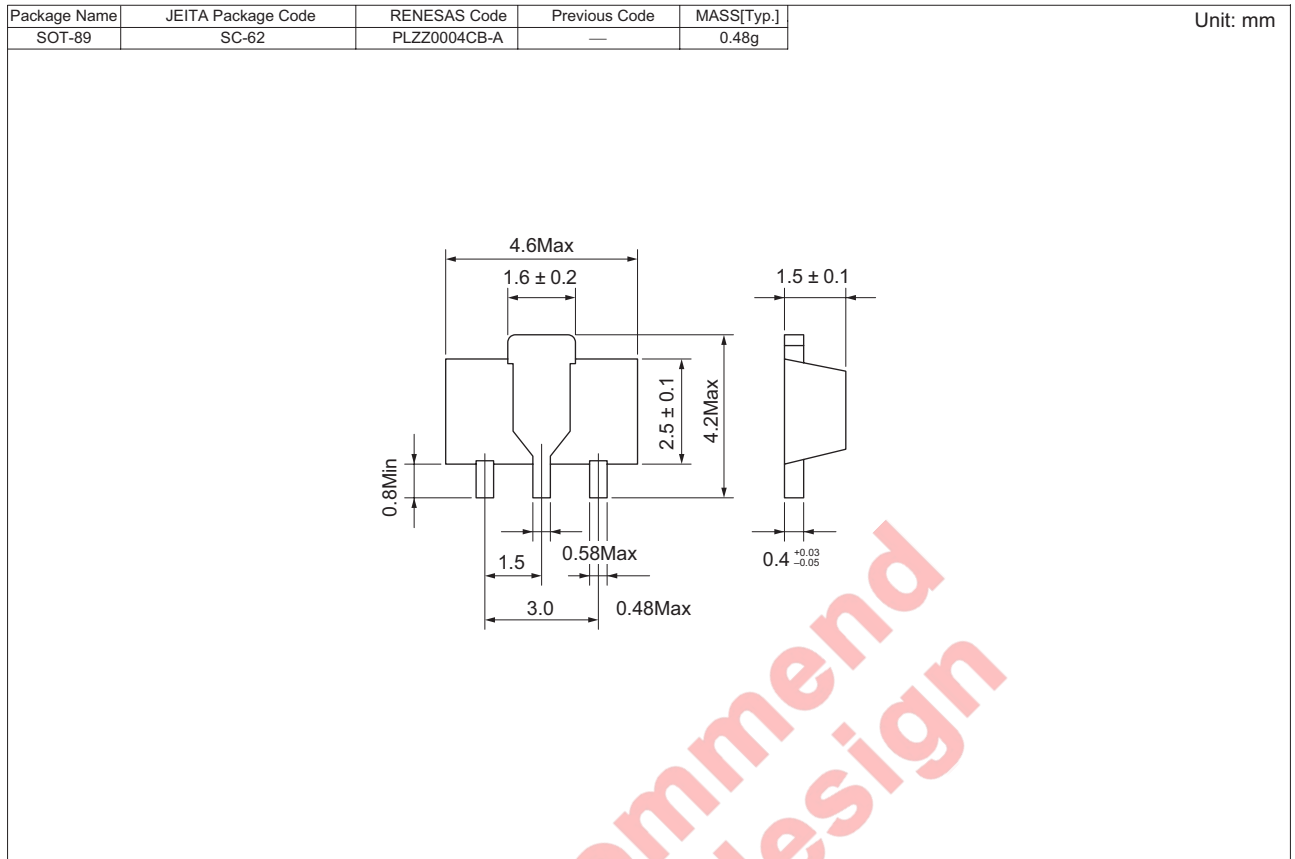
(Ta = 25°C, unless otherwise noted)

Item	Symbol	Min	Typ	Max	Unit	Test condition		
Detecting voltage	Vs	2.74	2.87	3.00	V	M627X2, 3		
		2.46	2.58	2.70		M627X4, 5		
		2.28	2.39	2.50		M627X6, 7		
		1.64	1.72	1.80		M627X8, 9		
Hysteresis voltage	ΔV_S	50	80	110	mV			
Detecting voltage temperature coefficient	$V_S/\Delta T$	—	0.01	—	%/°C			
Circuit current	I _{CC}	100	200	340	μ A	No OSC & counter		
		120	220	400		M6270X		
		250	395	560		M6271X		
		225	370	535		Built-in OSC & counter X=2,3,4	V _{CC} =3.3V	M627X2
							M627X3	
		230	375	540		V _{CC} =3.0V	M627X4	
							M627X5	
		205	350	515		V _{CC} =2.7V	M627X6	
							M627X7	
		200	345	510		V _{CC} =2.0V	M627X8	
							M627X9	
Delay time	tpd	—	3	—	μ s	Response Time		
		80	200	500		M6270X		
		30	50	70		ms	Ta=−30 to +85°C	
							M6271X	
							M6272X	
M6273X								
M6274X								
Output saturation voltage	V _{sat}	—	0.2	0.4	V	V _{CC} =2V, I _{sink} =4mA, M627X8,9: V _{CC} =1.6V		
Threshold operating voltage	V _{OPL}	—	0.7	0.8	V	Minimum supply voltage for operation	R _L =2.2k Ω , V _{sat} ≤0.4V	
		—	0.6	0.7			R _L =100k Ω , V _{sat} ≤0.4V	
Output load current	I _{OC}	−40	−25	−17	μ A	Built-in Load type, V _O =1/2*V _{CC}		
Output high voltage	V _{OH}	V _{CC} −0.2	V _{CC} −0.06	—	V	Built-in Load type		
Output leak current	I _{OH}	—	—	30	nA	Open collector type	Ta=−30 to +85°C	
		—	—	1	μ A			

Example of Application Circuit



Package Dimensions



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