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LM3724IM5 Series

Open-Drain Microprocessor Reset Circuit

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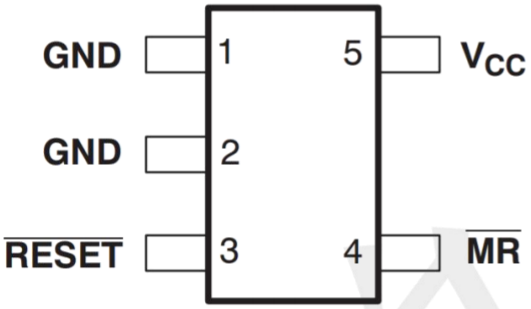
Features

- Wide Operation Voltage Range of 1V to 5.5V
- Correct Logic Output Guaranteed to V_{CC}=1.0V
- 200ms Reset Pulse Width
- Manual Reset Input
- Power-Supply Transient Immunity
- Available in One Output Configuration: Active LOW Reset

Applications

- Battery-operated systems and controllers
- Embedded Control Systems
- Critical μP and μC power monitoring
- Portable / Battery powered equipment
- Automotive

Pin Definition (TOP VIEW)



SOT23-5

Ordering Information

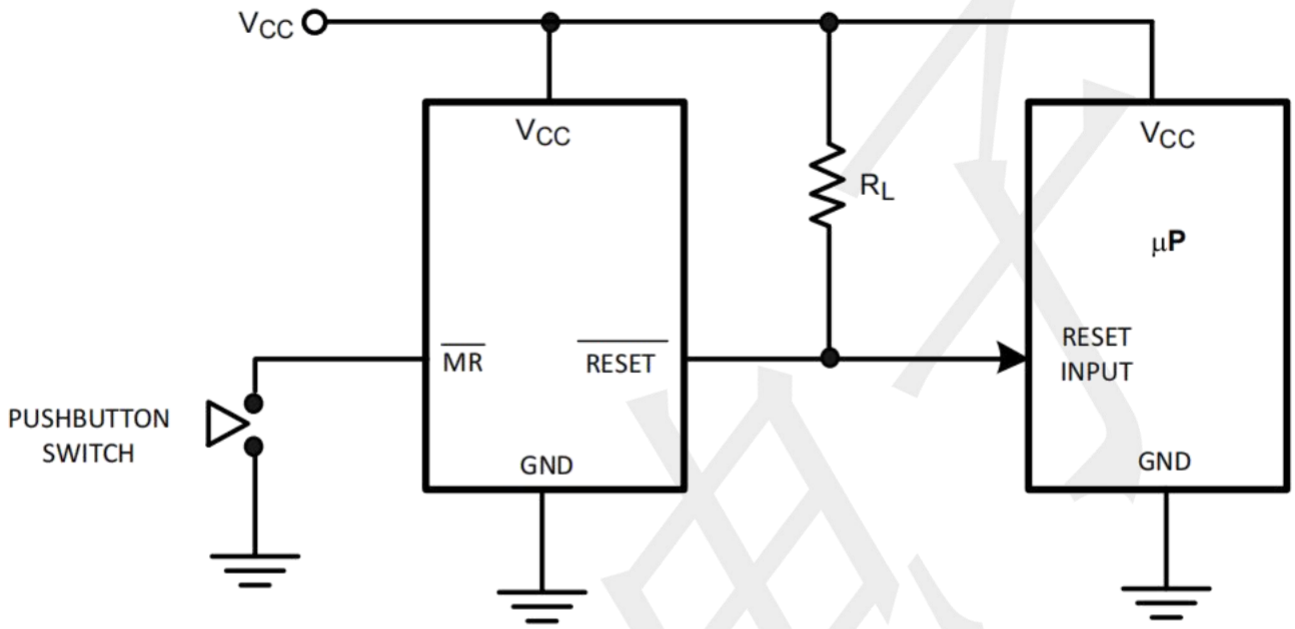
LM3724IM5-3.08-TP

RESET VOLTAGE:
2.32=2.32V
3.08=3.08V
4.63=4.63V

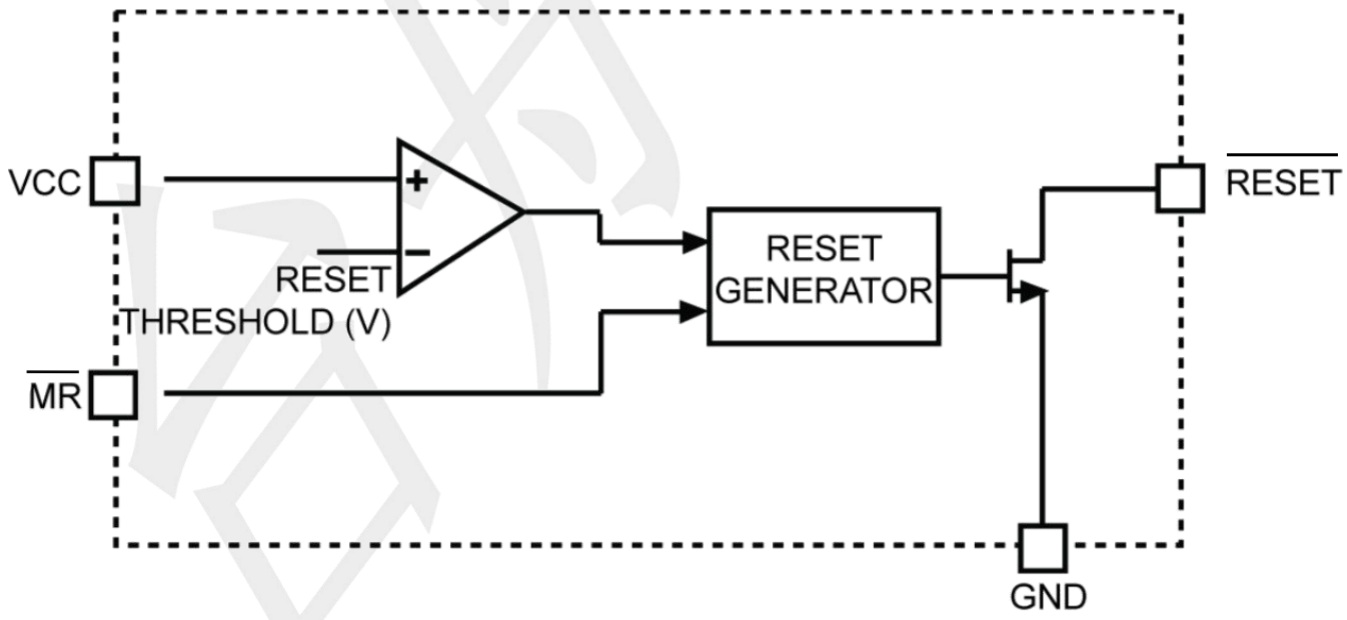
PIN CONFIGURATION

PIN	NAME	FUNCTION
1	GND	Ground
2	GND	Ground
3	$\overline{\text{RESET}}$	$\overline{\text{RESET}}$ goes low if VCC falls below the reset threshold and remains asserted for one reset timeout period after VCC exceeds the reset threshold.
4	VDD	Supply Voltage
5	$\overline{\text{MR}}$	Manual Reset Input: A logic LOW on $\overline{\text{MR}}$ forces a reset. The reset will remain asserted as long as $\overline{\text{MR}}$ is held LOW and for one reset timeout period after $\overline{\text{MR}}$ goes HIGH. This input can be shorted to ground via a switch or be driven by TTL or CMOS logic. Float if unused.

TYPICAL APPLICATIN CIRCUIT



FUNCTIONAL BLOCK DIAGRAM



Absolute Maximum Ratings （Note 1）

Symbol	Parameter		Value	Unit
V_{CC}	Supply Voltage		-0.3 to +6.0	V
	$\overline{RESET}$, $\overline{MR}$		-0.3 to (V_{CC}+0.3)	
I_{CC}	Input Current, V_{CC}, $\overline{MR}$		20	mA
I_O	Output Current, $\overline{RESET}$		20	mA
P_D	Continuous Power Dissipation	SOT23-5	300	mW
T_A	Operating Temperature Range		-40 to +85	°C
T_{STG}	Storage Temperature Range		-65 to +150	°C
	Lead Temperature (Soldering, 10s)		+300	°C

Note 1: Stresses beyond those listed under “Absolute maximum Ratings” may cause permanent damage to the device. These are stress ratings only and functional operation of the device at these or any other conditions beyond those indicated in the operational sections of the specifications are not implied. Exposure to absolute maximum rating conditions for extended periods may affect device reliability.Note 1: Stresses beyond those listed under “Absolute maximum Ratings” may cause permanent damage to the device. These are stress ratings only and functional operation of the device at these or any other conditions beyond those indicated in the operational sections of the specifications are not implied. Exposure to absolute maximum rating conditions for extended periods may affect device reliability.

ESD Ratings

Symbol	ESD Mode	Value	Unit
HBM	Human Body Mode	±2000	V
CDM	Charged Device Mode	±500	

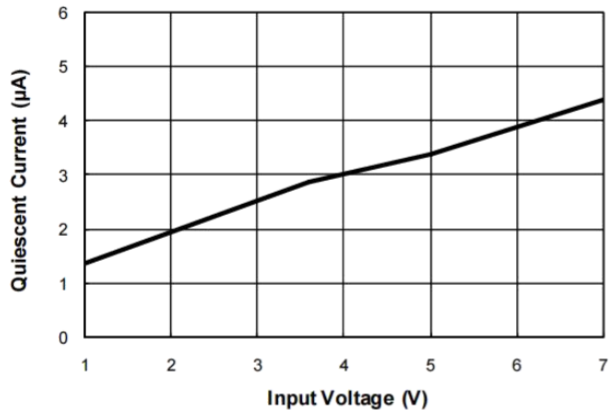
Electrical Characteristics

(TA=-40°C to +85°C, unless otherwise noted. Typical values are at TA=+25°C.)

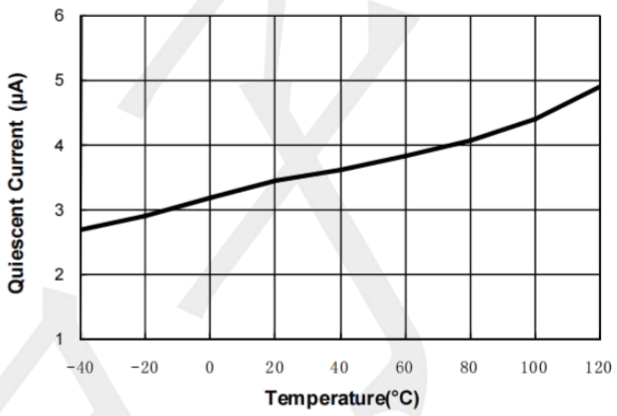
Symbol	Parameter	Conditions		MIN	Typ	MAX	UNIT
VCC	Supply Voltage Range	TA=0°C to +70°C		1.0	--	5.5	V
		TA=-40°C to +85°C		1.2	--	5.5	
ICC	Supply Current			--	6.0	--	uA
VTH	Reset Threshold	4.63 Version	TA=+25°C	4.54	4.63	4.72	V
			TA=-40°C to +85°C	4.50	--	4.75	
		3.08 Version	TA=+25°C	3.03	3.08	3.14	
			TA=-40°C to +85°C	3.00	--	3.15	
		2.32 Version	TA=+25°C	2.27	2.32	2.37	
			TA=-40°C to +85°C	2.25	--	2.40	
	Reset Threshold Tempco			--	150	--	ppm/°C
	VCC to Reset Delay	VCC=VTH to (VTH–100mV)		--	20	--	µS
TRP	Reset Active Timeout Period	TA=-40°C to +85°C		140	240	450	mS
VOL	/RESET Output Voltage Low	VCC=VTH min, ISINK=1.2mA,		--	--	0.3	V
		VCC=VTH min, ISINK=3.2mA,		--	--	0.4	
		VCC>1.0V, ISINK=50µA		--	--	0.3	
tMR	/MR Minimum Pulse Width			--	10	1	µS
VIH	/MR Input Threshold	VCC > VTH (MAX),		2.3	--	--	V
VIL				--	--	0.8	
	/MR Pull-up Resistance			10	30	50	KΩ

Typical Operating Characteristics

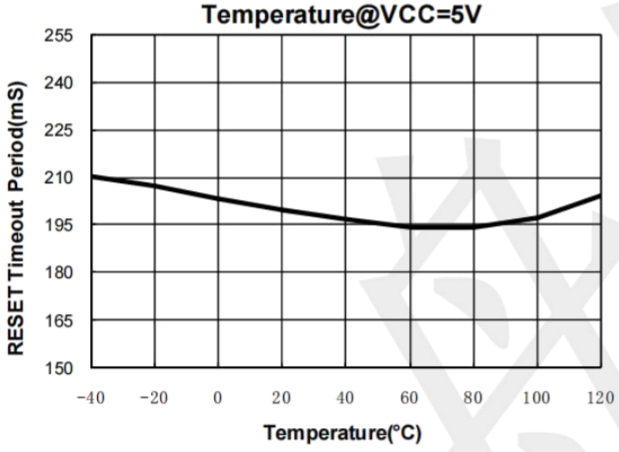
Quiescent Current vs. Input Voltage@Ta=20°C



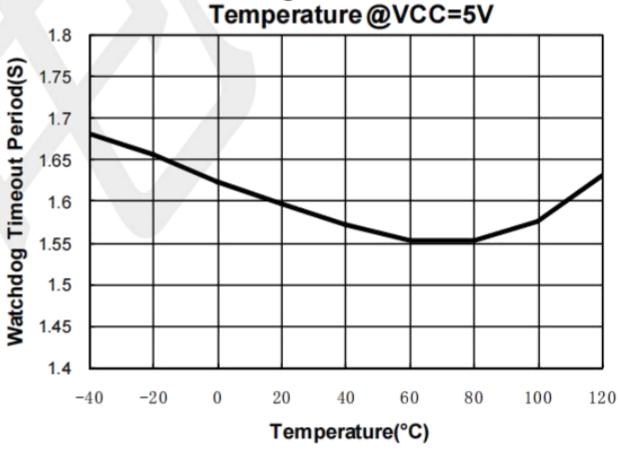
Quiescent Current vs. Temperature @VCC=5V



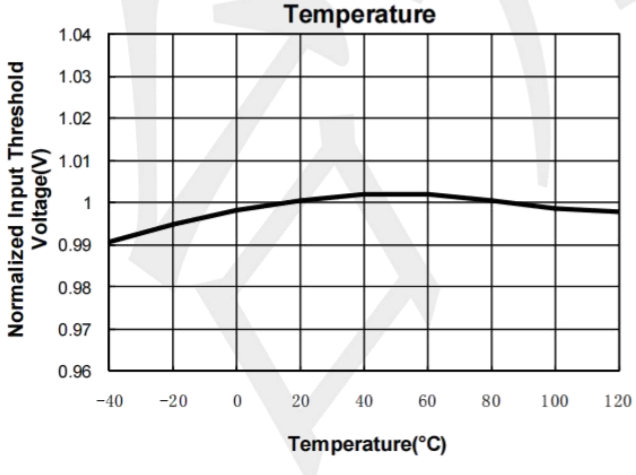
RESET Timeout Period vs. Temperature@VCC=5V



Watchdog Timeout Period vs. Temperature @VCC=5V

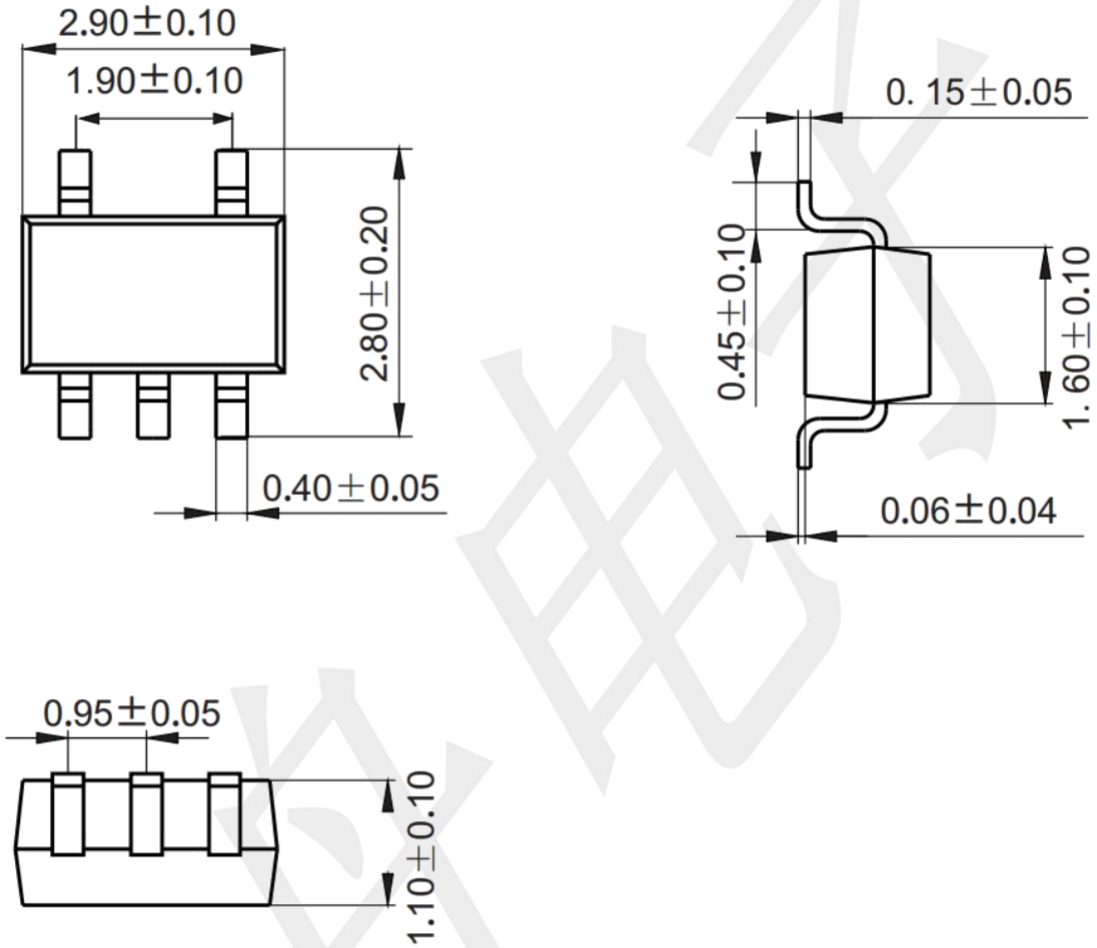


Normalized Input Threshold Voltage vs. Temperature



Package Outline Dimensions (unit: mm)

SOT23-5



Mounting Pad Layout (unit: mm)