
DAVICOM Semiconductor, Inc.

DM9161B

Fix DM9161B SPEED LED ISSUE

Application Note

*DM9161B-AN1-01
March 31, 2008*



聯傑國際股份有限公司

● Phenomenon

When DM9161B sets with 100Mbps, it will be seen speed LED (pin12) light without link-partner

● The investigation of cause

That is because speed LED (pin12) light to display the setting of speed in DM9161B at present, even though DM9161B link without link-partner.

That is different from DM9161A that only can display speed LED as linking with link-partner

● Countermeasure

If you need the same function of speed LED with DM9161A, please refer the circuit *1 as follows. It is shown in red circle that adds NPN BJT*2 to modify the function of speed LED. It makes that DM9161B can only display speed LED in linking with link-partner.

***1 LED function description of the circuit in normal LED mode**

Normal LED mode

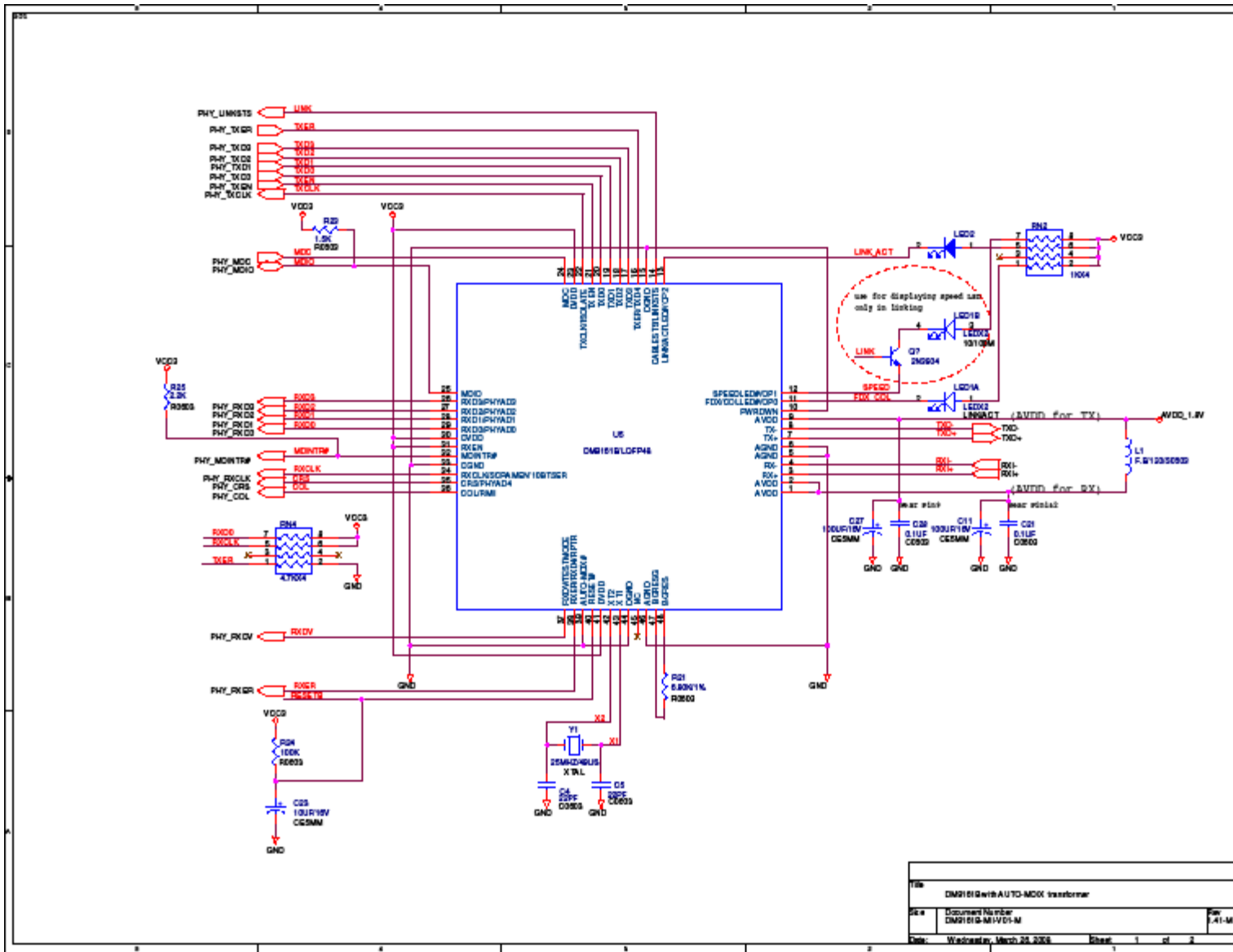
Name	Pin	Lo	Hi
LED0	11	FDX	HDX
LED1	12	SPEED: 100M	SPEED: 10M
CABLESTS / LINKSTS			Pull Down
Name	Pin	Lo	Hi
LED2	13	Link	Link Fail
		Flashing (HiLo) Active	

Pin31 pull high for normal LED mode

***2: Circuit & BJT 2N3904 datasheet that you can open it by clicking two times**

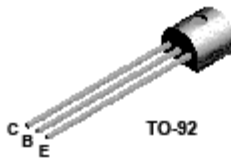


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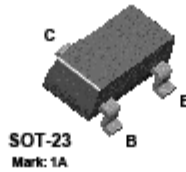




2N3904



MMBT3904



PZT3904



NPN General Purpose Amplifier

This device is designed as a general purpose amplifier and switch. The useful dynamic range extends to 100 mA as a switch and to 100 MHz as an amplifier.

Absolute Maximum Ratings* T_A = 25°C unless otherwise noted

Symbol	Parameter	Value	Units
V _{CEO}	Collector-Emitter Voltage	40	V
V _{CBO}	Collector-Base Voltage	60	V
V _{ES0}	Emitter-Base Voltage	6.0	V
I _C	Collector Current - Continuous	200	mA
T _J , T _{stg}	Operating and Storage Junction Temperature Range	-55 to +150	°C

*These ratings are limiting values above which the serviceability of any semiconductor device may be impaired.

NOTES:

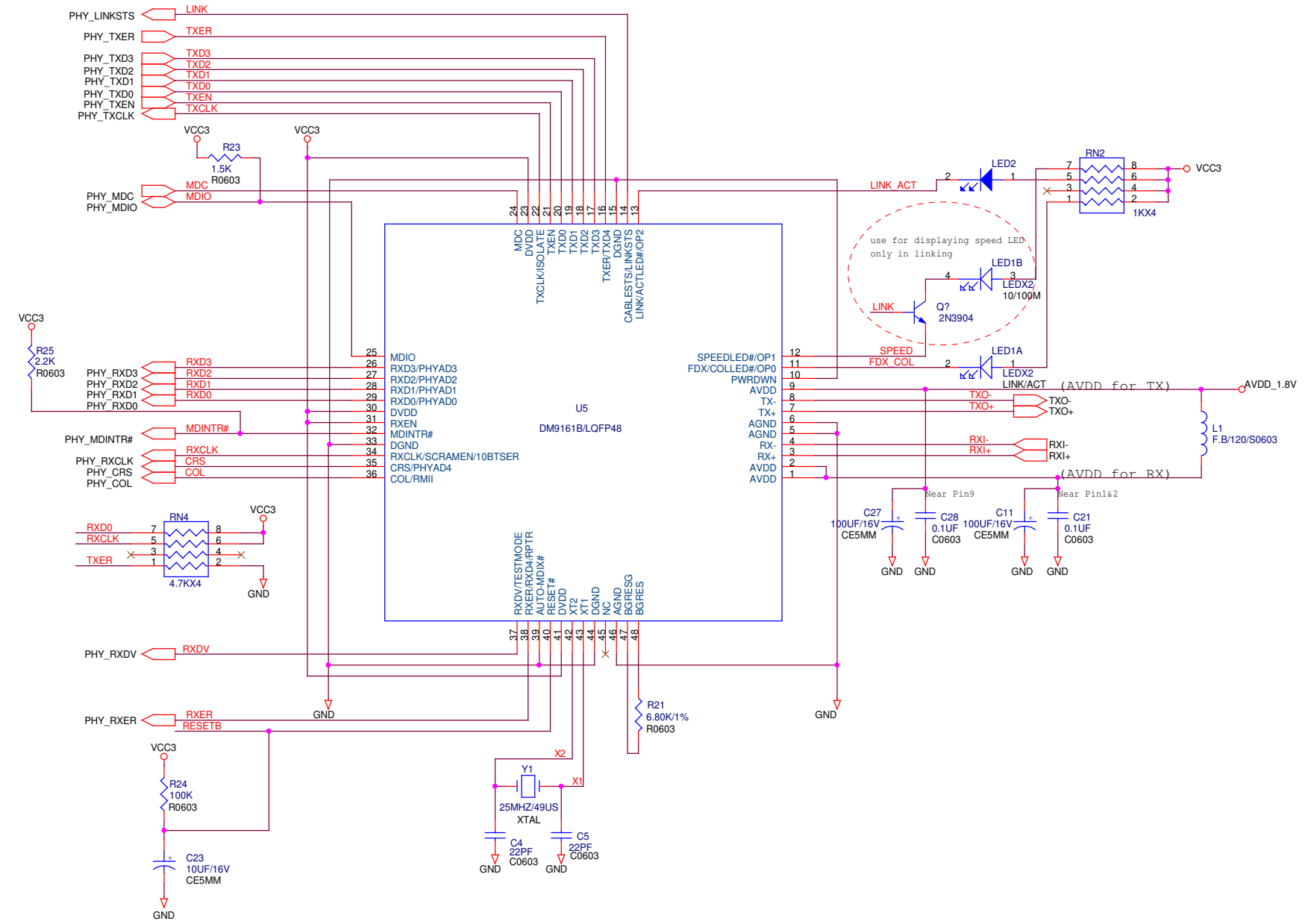
- 1) These ratings are based on a maximum junction temperature of 150 degrees C.
- 2) These are steady state limits. The factory should be consulted on applications involving pulsed or low duty cycle operations.

Thermal Characteristics T_A = 25°C unless otherwise noted

Symbol	Characteristic	Max			Units
		2N3904	*MMBT3904	**PZT3904	
P _D	Total Device Dissipation	625	350	1,000	mW
	Derate above 25°C	5.0	2.8	8.0	mW/°C
R _{θJC}	Thermal Resistance, Junction to Case	83.3			°C/W
R _{θJA}	Thermal Resistance, Junction to Ambient	200	357	125	°C/W

* Device mounted on FR-4 PCB 1.6" X 1.6" X 0.06"

** Device mounted on FR-4 PCB 36 mm X 18 mm X 1.5 mm; mounting pad for the collector lead min. 6 cm².



Title		
DM9161B with AUTO-MDIX transformer		
Size	Document Number	Rev
	DM9161B-MII-V01-M	1.41-M
Date:	Wednesday, March 26, 2008	Sheet 1 of 2