

# Miniature Pushbutton Switches (with illumination)



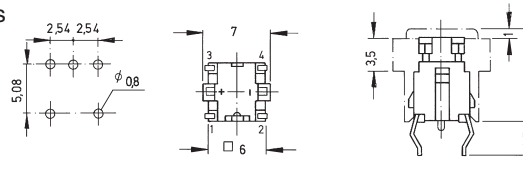
## Specifications:

Contacts:	TR = rubber contact TM = metal contact
Contact rating:	TR 12 V DC, 10 mA, TM 48 V DC, 50 mA max. 1 W
Contact resistance:	TR < 500 Ω at 1,5 N operating force TM < 100 mΩ at 2 N operating force
Insulation resistance:	> 100 MΩ at 100 V DC
Dielectric strength:	250 V, 50 Hz for the duration of 1 minute
Operating temperature:	- 25° to + 70° C
Electrical life:	TR minimum 100 000 operations TM minimum 300 000 operations
Contacts:	TR rubber contact bridge; fixed contact phosphor bronze, gold-plated TM stainless steel, silver-plated
Terminals:	PC terminals, TR gold-plated; TM silver-plated
Travel:	TR 1 mm; TM 0,25 mm
Material:	button: PBT; case: TR: PA meets UL 94 V-0, TM: 6T PA resin; caps: ABS
Mounting:	on pc-board
Soldering conditions:	TR: auto-soldering – max.: 3 sec, 245° C ± 10° C TM: auto-soldering – max.: 5 sec, 300° C

## Models: Switching functions

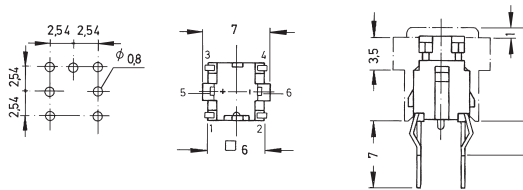
without LED

TR 1  
TM 1      off – mom

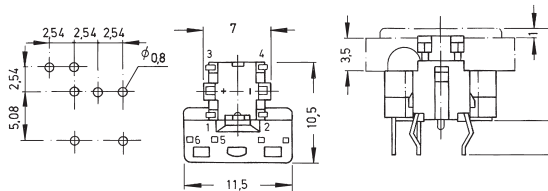


with LED

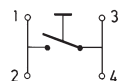
TR 2 – L.  
TM 2 – L.      off – mom  
– LR (LED red)  
– LG (LED green)  
– LY (LED yellow)



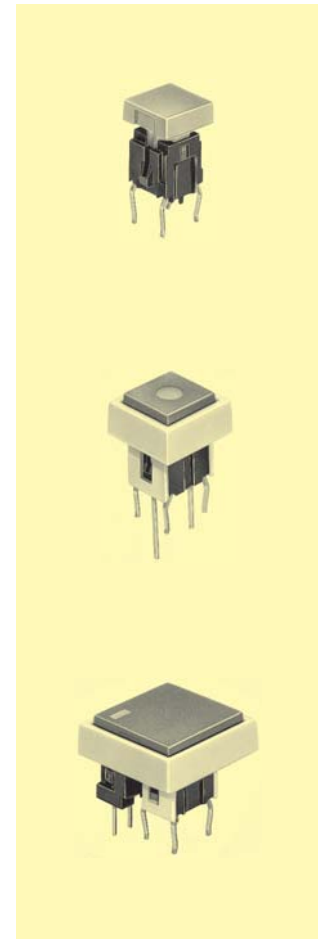
TR 3 – L.  
TM 3 – L.      off – mom  
– LR (LED red)  
– LG (LED green)  
– LY (LED yellow)



Circuit diagram:



TR/TM 2-LR: I<sub>F</sub> = 20 mA; U<sub>F</sub> = 2,0 V  
TR/TM 2-LG: I<sub>F</sub> = 10 mA; U<sub>F</sub> = 1,95 V  
TR/TM 2-LY: I<sub>F</sub> = 10 mA; U<sub>F</sub> = 1,90 V  
TR/TM 3-L.: I<sub>F</sub> = 10 mA; U<sub>F</sub> = 2,1 V





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## Accessories:

	TR 1 / TM 1	TR 2 / TM 2	TR 1 / TM 1	TR 1 / TM 1	TR 3 / TM 3
Caps					
dark grey	KT 1017	KT 1117	KT 2017	KT 3017	KT 3117
grey	KT 1007	KT 1107	KT 2007	KT 3007	KT 3107
light grey	KT 1027	KT 1127	KT 2027	KT 3027	KT 3127
ivory	KT 1011	KT 1111	KT 2011	KT 3011	KT 3111
silver	KT 1021	KT 1121	KT 2021	KT 3021	KT 3121
red	KT 1009	KT 1109	KT 2009	KT 3009	KT 3109
green	KT 1006	KT 1106	KT 2006	KT 3006	KT 3106
blue	KT 1004	KT 1104	KT 2004	KT 3004	KT 3104
brown	KT 1002	KT 1102	KT 2002	KT 3002	KT 3102

	TR 1 / TM 1	TR 2 / TM 2	TR 1 / TM 1	TR 3 / TM 3
Bezels				
dark grey	FM 1017	FM 2017	FM 3017	
grey	FM 1007	FM 2007	FM 3007	
light grey	FM 1027	FM 2027	FM 3027	
ivory	FM 1011	FM 2011	FM 3011	

	TR 1 / TM 1	TR 2 / TM 2	TR 1 / TM 1	TR 1 / TM 1	TR 3 / TM 3
Mounting dimensions					