Low Thermal Reed Relays

DESCRIPTION

The BT series are low thermal relays with 2 Form A switches having a thermal offset voltage of 1μV max. with a 100% duty cycle. This extremely low thermal voltage is achieved through an optimized temperature balance between the Reed Switches and minimum coil power. This enables the relays of the BT series to switch signals in the low μV level.

FEATURES

- Very low offset voltages
- Compatible with other manufactures
- Two different sizes

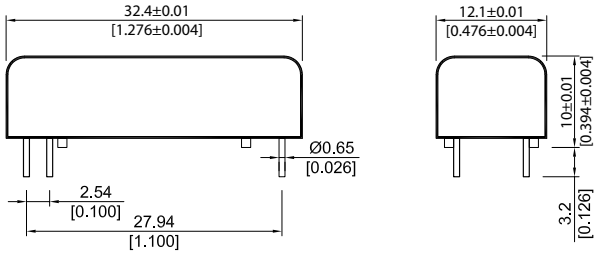
APPLICATIONS

- Test, measurement and control technology
- High precision measuring devices
- Changing-over switch for measuring points of thermotric elements and resistance thermometers
- Recorder inputs
- Scanners
- data acquisition systems

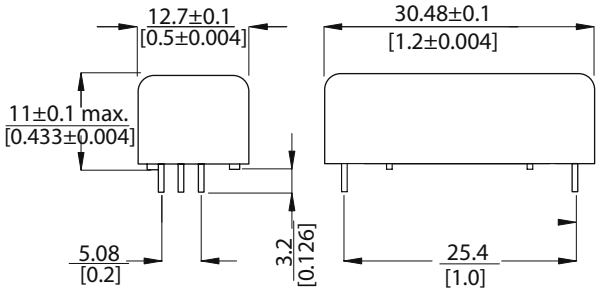
DIMENSIONS

All dimensions in mm [inch]

BT



BTS



Pins: ø 0.65[0.026] mm
L = 3.2±0.3[0.126±0.012]mm

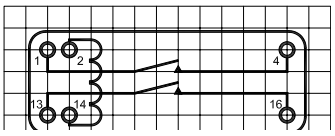
Material: Cu-alloy tinned

LAYOUT

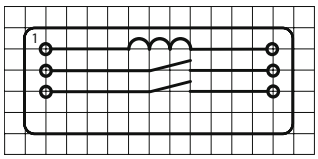
Pitch 2.54 m [0.096]/ Top view

BT

View from top of component
2.54mm [0.10"] pitch grid



BTS



ORDER INFORMATION

Part Number Example -

BT05 - 2A66

BT is the size
05 is the nominal voltage
2A is the number of contact and contact form
66 is the switch model

Series	Nominal Voltage	Contact Form	Switch model
BT	05, 12, 24	2A	66, 75
BTS	05,	2A	46, 75, 85

Low Thermal Reed Relays

RELAY DATA

All Data at 20° C	Switch Model → Contact Form →	Switch 46 A / dry			Switch 66 A / dry			
Contact Ratings	**Conditions**	**Min.**	**Typ.**	**Max.**	**Min.**	**Typ.**	**Max.**	**Units**
Switching Power	Any DC combination of V & A not to exceed their individual max.'s.			10			10	W
Switching Voltage	DC or peak AC			200			200	V
Switching Current	DC or peak AC			0.5			0.5	A
Carry Current	DC or peak AC			1.5			1.25	A
Static Contact Resistance	Measured w/ 0.5 V & 50 mA			150			150	mΩ
Dynamic Contact Resistance				200			200	mΩ
Insulation Resistance (100 Volts applied)	Across contacts Contact to coil	10^{12} 10^{12}			10^{10} 10^{12}			Ω
Breakdown Voltage	Across contacts Coil to contact	225 1500			225 1500			VDC VDC
Operate Time incl. Bounce	Nominal voltage			0.7			0.5	ms
Release Time	Measured w/ no coil suppression			0.1			0.1	ms
Capacitance	Across contacts Contact to coil		0.2 4.0			0.2 4.0		pF
Thermal Offset	See schematic on the following page			1			1	µV
Life Expectancies								
Switching 5V & 10 mA	DC only & < 10 pF stray cap.		1000				1000	10^6 Cycles
For other load requirements, see the life test section on P. 120.								
Environmental Data								
Shock Resistance	1/2 sine wave duration for 11 ms			50			50	g
Vibration Resistance	From 10 - 2000 Hz			20			20	g
Ambient Temperature	10°C/ minute max. allowable	-20		85	-20		85	°C
Storage Temperature	10°C/ minute max. allowable	-35		100	-35		100	°C
Soldering Temperature	5 sec. dwell			260			260	°C
Wash Ability		Flux Tight						

RELAY DATA

All Data at 20° C	Switch Model → Contact Form →	Switch 75 A / dry			Switch 85 A / dry			
Contact Ratings	**Conditions**	**Min.**	**Typ.**	**Max.**	**Min.**	**Typ.**	**Max.**	**Units**
Switching Power	Any DC combination of V & A not to exceed their individual max.'s.			10			100	W
Switching Voltage	DC or peak AC			500			1000	V
Switching Current	DC or peak AC			0.5			1	A
Carry Current	DC or peak AC			2			2.5	A
Static Contact Resistance	Measured w/ 0.5 V & 50 mA			200			150	mΩ
Dynamic Contact Resistance				200				mΩ
Insulation Resistance (100 Volts applied)	Across contacts Contact to coil	10^{10} 10^{12}			10^{10} -			Ω
Breakdown Voltage	Across contacts Coil to contact	1500 1500			1500 -			VDC VDC
Operate Time incl. Bounce	Nominal voltage			0.5			1.1	ms
Release Time	Measured w/ no coil suppression			0.1			0.1	ms
Capacitance	Across contacts Contact to coil		0.4 4.0			0.4 4.0	0.5 -	pF
Thermal Offset	See schematic on the following page			3			1	µV
Life Expectancies								
Switching 5V & 10 mA	DC only & < 10 pF stray cap.		500			500		10^6 Cycles
For other load requirements, see the life test section on P. 120.								
Environmental Data								
Shock Resistance	1/2 sine wave duration for 11 ms			50			50	g
Vibration Resistance	From 10 - 2000 Hz			20			20	g
Ambient Temperature	10°C/ minute max. allowable	-20		85	-20		70	°C
Storage Temperature	10°C/ minute max. allowable	-35		100	-35		100	°C
Soldering Temperature	5 sec. dwell			260			260	°C
Wash Ability		Flux Tight						

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COIL DATA

Series	Contact Form	Switch Model	Coil Voltage		Coil Resistance **			Pull-In Voltage	Drop-Out Voltage	Nominal Coil Power
All Data at 20 °C *			VDC		Ω			VDC	VDC	mW
			Nom.	Max.	Min.	Typ.	Max.	Max.	Min.	Typ.
BT	2A	66	5	7.5	810	900	990	3.8	1	30
			12	16	4590	5100	5610	9	2	30
			24	30	18450	20500	22550	18	3.5	30
		75	5	7.5	810	900	990	3.8	1	28
BTS	2A	46	5	8	315	350	385	3.8	0.4	72
		75	5	8	180	200	220	3.8	0.4	125
		85	5	7.5	270	300	330	3.8	0.4	83

* The pull-in / drop-out voltage and coil resistance will change at the rate of 0,4% per °C
** Other resistance values on request.

MEASURING SCHEMATIC

BT Top View **BTS**