MRBS • MRBS2

DESCRIPTION

The MRBS is a non-polarity sensitive device with a high sensitivity version for direct coupling to TTL and CMOS outputs without auxiliary relay drivers. This is due to low input power requirements (10mW) while maintaining the high isolation and low contact resistance features of the Clare DYAD®. The MRBS has a sealed package for automatic board processing.

Alternate low resistance single and dual coil versions are designed for telecommunication applications sensing off-hook conditions without loading the line or causing distortion of the line balance condition.

FEATURES

- High isolation
- Electromagnetic shielding
- Fully encapsulated assembly to meet power, size and assembly requirements
- Reduced input power
- FCC68 compatible

APPLICATIONS

- Telecommunications
- Battery powered
- Current sensing

AGENCY APPROVALS

- EN 60950 certified

RATINGS (@ 25° C)

Parameter	Min	Typ	Max	Unit
Switching Voltage			200	Volts
Switching Current			0.5	Amps
Carry Current			1	Amps
Switching Frequency			500	Hz
Contact Resistance			200	mΩ

(See detailed specifications for more information.)

MRBS · MRBS2

SPECIFICATIONS

All parameters are at 25°C unless otherwise stated.

PARAMETER	CONDITIONS	SYMBOL	MRBS 1-Form-A MIN	MRBS 1-Form-A TYP	MRBS 1-Form-A MAX	MRBS2 Current Sensing 1-Form-A MIN	MRBS2 Current Sensing 1-Form-A TYP	MRBS2 Current Sensing 1-Form-A MAX	UNITS
Contact Ratings									
Switching Voltage	Max DC/Peak AC Resistive	V_L	-	-	200	-	-	75	Volts
Switching Current	Max DC/Peak AC Resistive	I_L	-	-	0.5	-	-	0.15	Amps
Carry Current	Max DC/Peak AC Resistive	I_C	-	-	1	-	-	1	Amps
Contact Rating	Max DC/Peak AC Resistive	-	-	-	10	-	-	5	Watts
Life Expectancy	Signal Level 1.0V, 10mA Rated Loads(1)	-	-	100	-	-	100	-	$x10^6$ Ops
Static Contact Resistance	50mV, 10mA	CR	-	-	200	-	-	200	mΩ
Contact Material		-	-	Ru	-	-	Ru	-	-
Relay Specifications									
Insulation Resistance	Between all isolated pins at 100V, 25°C, 40%RH	IR	10^{10}	-	-	10^{10}	-	-	Ω
Capacitance	Across Open Contacts	-	-	0.6	2	-	0.6	2	pF
	Open Contact to Coil	-	-	2.5	5	-	2.5	5	pF
	Closed Contact to Coil	-	-	4.5	6.5	-	4.5	6.5	pF
Dielectric Strength	Between Contacts	I/O	250	-	-	210	-	-	VDC/peak AC
	Contacts to Coil	I/O	1400	-	-	1400(2)	-	-	VDC/peak AC
Operate Time (MRBS including bounce)	At Nominal coil voltage, 10Hz Square Wave	T_{OP}	-	1.3	2	-	1.3	2	ms
Release Time	Zener-Diode Suppression	T_{REL}	-	1	1.5	-	1	1.5	ms
Environmental Ratings									
Storage Temperature		T_A	-20	-	+85	-20	-	+85	°C
Operating Temperature		T_O	-20	-	+70	-20	-	+70	°C
Soldering Temperature	Applied to pins, 5 sec. max.	-	-	-	+260	-	-	+260	°C
Vibration Resistance (Survival)	5Hz to 2000Hz	G	-	-	10	-	-	10	Gs
Shock Resistance (Survival)	11±1ms, 1/2 Sine Wave	S	-	-	50	-	-	50	Gs
Weight		-	-	11	-	-	11	-	grams

(1) Consult factory for life requirements
(2) Model MRBS20012 is rated at 4000V_{RMS}.

COIL SPECIFICATIONS (MRBS)

	Coil Voltage			Coil Resistance			Operate Voltage			Release Voltage			Schematic
Units	Volts			Ω			Volts			Volts			
Conditions				±10%, 25°C			Must operate by 25°C			Must release by 25°C			
Part #	Min	Typ	Max	Min	Typ	Max	Min	Typ	Max	Min	Typ	Max	
MRBS001A204		4	14	1305	1450	1595			3	0.3			1
MRBS001A205		5	17	2520	2800	3080			3.8	0.5			1
MRBS001A212		12	36	9900	11,000	12,100			9	1			1

Note: Operate voltage, release voltage, and coil resistance will change by 0.4%/°C as ambient temperature varies.

COIL SPECIFICATIONS (MRBS2)

	Coil Current			Coil Resistance			Operate Current			Release Current			
Units	mA			Ω			mA			mA			
Conditions				±10%, 25°C			Must operate by 25°C			Must release by 25°C			
Part #	**Min**	**Typ**	**Max**	**Min**	**Typ**	**Max**	**Min**	**Typ**	**Max**	**Min**	**Typ**	**Max**	**Schematic**
MRBS20001			200	16.2	18	19.8			15	2.5			2
MRBS20003			125	41.4	46	50.6			8	0.8			2
MRBS20010			200	14.4	16	17.6			15	2.5			2
MRBS20031			200	11.7	13	14.3			15	2.5			2
MRBS20043			265	9	10	11			15	2.5			2
MRBS20002 L1			200	8.1	9	9.9			15	2.5			3
MRBS20002 L2			200	8.1	9	9.9							3
MRBS20037 L1			235	5.85	6.5	7.15			15	2.5			3
MRBS20037 L2			235	5.85	6.5	7.15							3
MRBS20046 L1			270	4.5	5	5.5			15	2.5			3
MRBS20046 L2			270	4.5	5	5.5							3
MRBS20012			200	16.2	18	19.8			15	2.5			4

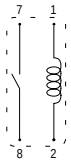
MRBS 20002, 20037, and 20046 operate values are specified with 2 coils wired in series, magnetically aiding.

MRBS Schematics

MRBS
Schematic 1

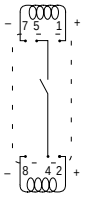
Top View

MRBS
Schematic 2



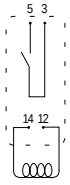
Top View

MRBS
Schematic 3



Top View

MRBS
Schematic 4

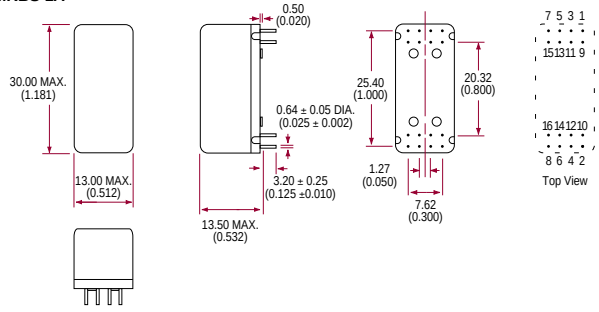


Top View

MECHANICAL DIMENSIONS

DIMENSIONS
mm
(inches)

MRBS 1A



ORDERING INFORMATION

MRBS

A complete part number is represented by the digits below.

MRBS 001A 2XX

- Series: *MRBS*
- Coil Voltage: *204 = 4V*, *205 = 5V*, *212 = 12V*
- Contact Form: *001A = 1-Form-A*

MRBS2

Full part numbers are listed in the coil specification chart above.