

# NOTES

# Reed Switch Specification Section

In the following section our standard Reed Switches are described and their specifications presented. At the end of the section life-load graphs are presented for each switch giving an idea of its expected life for given load requirements. Also presented at the end of this section, are standard test coils. All our Reed Switches are tested as specified in the specification data as to the exact KMS coil used to measure the operate, release and contact resistance of each Reed Switch. The ampere-turns (AT) for each Reed Switch operate and release are determined using these coils. For details converting the AT to Gauss or milliTesla, please consult our applications department.

Magnet specifications and requirements are presented in the Permanent Magnet section following the Reed Sensor Specification section. If the exact magnet you require is not shown, please call our applications department where magnets necessary to meet your exact requirement can be discussed.

Examining our selection chart first, can help you narrow down your requirement rapidly where the main characteristics of each Reed Switch are specified. To become completely familiar with the Reed Switch specifications, please feel free to read our Reed Switch introductory section in the beginning of the book.

The ordering information for a given Reed Switch is presented in each specification.

If the switch characteristics you are looking for are not found, please consult our applications department. Sixty percent of our Reed Switches sold are special.

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## Test and Measurement

31, 46, 52, 75, 80, 85, 87, 88

## General Purpose

35, 46, 66, 71/7, 72, 80, 81, 84, 85, 87, 90

## Automotive

35, 52, 55, 66, 85, 87

## High Voltage / High Power RF

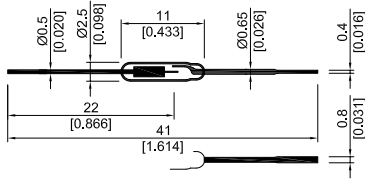
31, 35, 54, 69, 75, 77, 83, 85, 88

## TOLERANCES

The tolerances are on overall package dimensions +/- 0.25mm [+/- 0.010 inches]. Pin to pin dimensions are +/- 0.01mm [+/- 0.005 inches] unless otherwise specified.

**DIMENSIONS**

All dimensions in mm [inches]



**CHARACTERISTICS**

- Glass length of 11 mm and diameter of 2.5 mm
- Normally open 1 Form A contact
- No bounce, all positions

**CONTACT DATA**

All data at 20 °C	Switch Model → Contact Form →	KSK-1A31-... Form A			
Contact Ratings	Conditions	Min.	Typ.	Max.	Units
Contact Rating *	Any DC combination of V & A not to exceed their individual max.'s			50	W
Switching Voltage	DC or peak AC			1000	V
Switching Current	DC or peak AC			2.0	A
Carry Current	DC or peak AC			3.0	A
Static Contact Resistance	w/ 0.5V & 10mA			80	mΩ
Dynamic Contact Resistance	Measured w/ 0.5V & 50mA 1.5 ms after closure			200	mΩ
Insulation Resistance across Contacts	100 Volts applied	10 <sup>10</sup>			Ω
Breakdown Voltage	Voltage applied for 60 sec. min.	1.5			kVDC
Operate Time, Incl. Bounce	Measured w/ 100% overdrive			1.2	ms
Release Time	Measured w/ no coil suppression			1.0	ms
Capacitance	@ 10kHz across contact		0.3		pF
Test Coil **		KMS-01			
Standard AT range		30		65	AT
<b>Environmental Data</b>					
Shock Resistance	1/2 sine wave duration 11ms			50	g
Vibration Resistance	From 10 - 2000 Hz			20	g
Ambient Temperature	10 °C/ minute max. allowable	-20		130	°C
Storage Temperature	10 °C/ minute max. allowable	-35		130	°C
Soldering Temperature	5 sec. dwell			260	°C
Please note: The indicated electrical data are maximum values and can vary downwards when using a more sensitive switch.					
* For life expectancy see our life test section located on page 151.					
** See our test coil section located on page 157.					

**ORDER INFORMATION**

SERIES	CONTACT FORM	SWITCH MODEL	AT RANGE (between)
<b>KSK -</b>	<b>1A</b>	<b>31 -</b>	<b>XXXX</b>
<b>OPTIONS</b>			<b>30 65</b>

**Part Number Example - KSK - 1A31 - 3035**

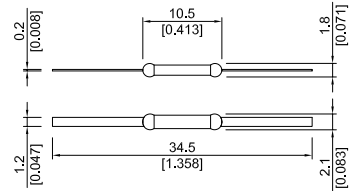
**3035** is the AT range (Any AT can be ordered between 30 & 65 in a minimum range of 2 AT)

## CHARACTERISTICS

- Glass length of 10.5 mm and diameter of 2.1 mm
- Normally open 1 Form A contact

## DIMENSIONS

All dimensions in mm [inches]



## CONTACT DATA

All data at 20 °C	Switch Model → Contact Form →	KSK-1A35-... Form A			
Contact Ratings	Conditions	Min.	Typ.	Max.	Units
Contact Rating *	Any DC combination of V & A not to exceed their individual max.'s			20	W
Switching Voltage	DC or peak AC			200	V
Switching Current	DC or peak AC			1.0	A
Carry Current	DC or peak AC			1.25	A
Static Contact Resistance	w/ 0.5V & 10mA			150	mΩ
Dynamic Contact Resistance	Measured w/ 0.5V & 50mA 1.5 ms after closure			200	mΩ
Insulation Resistance across Contacts	100 Volts applied	10 <sup>12</sup>			Ω
Breakdown Voltage	Voltage applied for 60 sec. min.	320			VDC
Operate Time, incl. Bounce	Measured w/ 100% overdrive			0.5	ms
Release Time	Measured w/ no coil suppression			0.1	ms
Capacitance	@ 10kHz across contact		0.2		pF
Test Coil **		KMS-01			
Standard AT range		10		30	AT
<b>Environmental Data</b>					
Shock Resistance	1/2 sine wave duration 11ms			50	g
Vibration Resistance	From 10 - 2000 Hz			20	g
Ambient Temperature	10 °C/ minute max. allowable	-20		130	°C
Storage Temperature	10 °C/ minute max. allowable	-55		130	°C
Soldering Temperature	5 sec. dwell			260	°C
Please note: The indicated electrical data are maximum values and can vary downwards when using a more sensitive switch.					
* For life expectancy see our life test section located on page 151.					
** See our test coil section located on page 157.					

## ORDER INFORMATION

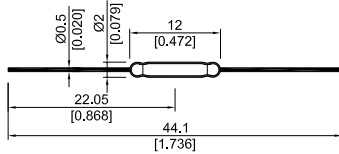
**Part Number Example - KSK - 1A35 - 1015**

1015 is the AT range (Any AT can be ordered between 10 & 30 in a minimum range of 2 AT)

SERIES	CONTACT FORM	SWITCH MODEL	AT RANGE (between)
KSK -	1A	35 -	XXXX
OPTIONS			10 30

**DIMENSIONS**

All dimensions in mm [inches]



**CHARACTERISTICS**

- Glass length of 12 mm and diameter of 2.0 mm
- Normally open 1 Form A contact
- Excellent for low level applications

**CONTACT DATA**

All data at 20 °C	Switch Model → Contact Form →	KSK-1A46-... Form A			
Contact Ratings	Conditions	Min.	Typ.	Max.	Units
Contact Rating *	Any DC combination of V & A not to exceed their individual max.'s			10	W
Switching Voltage	DC or peak AC			200	V
Switching Current	DC or peak AC			0.5	A
Carry Current	DC or peak AC			1.0	A
Static Contact Resistance	w/ 0.5V & 10mA			150	mΩ
Dynamic Contact Resistance	Measured w/ 0.5V & 50mA 1.5 ms after closure			200	mΩ
Insulation Resistance across Contacts	100 Volts applied	10 <sup>12</sup>			Ω
Breakdown Voltage	Voltage applied for 60 sec. min.	225			VDC
Operate Time, Incl. Bounce	Measured w/ 100% overdrive			0.7	ms
Release Time	Measured w/ no coil suppression			0.1	ms
Capacitance	@ 10kHz across contact		0.2		pF
Test Coil **		KMS-01			
Standard AT range		10		40	AT
<b>Environmental Data</b>					
Shock Resistance	1/2 sine wave duration 11ms			50	g
Vibration Resistance	From 10 - 2000 Hz			20	g
Ambient Temperature	10 °C/ minute max. allowable	-20		130	°C
Storage Temperature	10 °C/ minute max. allowable	-55		130	°C
Soldering Temperature	5 sec. dwell			260	°C
Please note: The indicated electrical data are maximum values and can vary downwards when using a more sensitive switch.					
* For life expectancy see our life test section located on page 151.					
** See our test coil section located on page 157.					

**ORDER INFORMATION**

SERIES	CONTACT FORM	SWITCH MODEL	AT RANGE (between)
KSK -	1A	46 -	XXXX
OPTIONS			10 40

**Part Number Example - KSK - 1A46 - 1015**

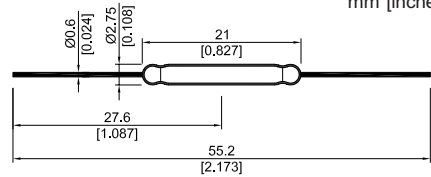
1015 is the AT range (Any AT can be ordered between 10 & 40 in a minimum range of 2 AT)

## CHARACTERISTICS

- Glass length of 21 mm and diameter of 2.75 mm
- Normally open 1 Form A contact
- High breakdown voltage of 600 VDC

## DIMENSIONS

All dimensions in mm [inches]



## CONTACT DATA

All data at 20 °C	Switch Model → Contact Form →	KSK-1A52-... Form A			
Contact Ratings	Conditions	Min.	Typ.	Max.	Units
Contact Rating *	DC switching - 50W AC RMS switching - 70W			50 70	W VA
Switching Voltage	DC or peak AC			250	V
Switching Current	DC or peak AC			0.5	A
Carry Current	DC or peak AC			2.5	A
Static Contact Resistance	w/ 0.5V & 10mA			150	mΩ
Dynamic Contact Resistance	Measured w/ 0.5V & 50mA 1.5 ms after closure			200	mΩ
Insulation Resistance across Contacts	100 Volts applied	10 <sup>10</sup>			Ω
Breakdown Voltage	Voltage applied for 60 sec. min.	600			VDC
Operate Time, Incl. Bounce	Measured w/ 100% overdrive			1.0	ms
Release Time	Measured w/ no coil suppression			0.1	ms
Capacitance	@ 10kHz across contact		0.2		pF
Test Coil **		KMS-01			
Standard AT range		20		65	AT
<b>Environmental Data</b>					
Shock Resistance	1/2 sine wave duration 11ms			50	g
Vibration Resistance	From 10 - 2000 Hz			20	g
Ambient Temperature	10 °C/ minute max. allowable	-20		130	°C
Storage Temperature	10 °C/ minute max. allowable	-55		130	°C
Soldering Temperature	5 sec. dwell			260	°C
Please note: The indicated electrical data are maximum values and can vary downwards when using a more sensitive switch.					
* For life expectancy see our life test section located on page 151.					
** See our test coil section located on page 157.					

## ORDER INFORMATION

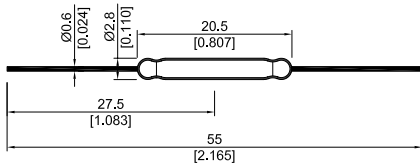
**Part Number Example - KSK - 1A52 - 2025**

**2025** is the AT range (Any AT can be ordered between 20 & 65 in a minimum range of 5 AT)

SERIES	CONTACT FORM	SWITCH MODEL	AT RANGE (between)
<b>KSK -</b>	<b>1A</b>	<b>52 -</b>	<b>XXXX</b>
<b>OPTIONS</b>			<b>20 65</b>

**DIMENSIONS**

All dimensions in mm [inches]



**CHARACTERISTICS**

- Glass length of 20.5 mm and diameter of 2.8 mm
- Normally open 1 Form A contact
- Carry current up to 2.5 A
- High breakdown voltage up to 2 kVDC
- Good RF switch

**CONTACT DATA**

All data at 20 °C	Switch Model → Contact Form →	KSK-1A53-... Form A			
Contact Ratings	Conditions	Min.	Typ.	Max.	Units
Contact Rating *	Any DC combination of V & A not to exceed their individual max.'s			10	W
Switching Voltage	DC or peak AC			220	V
Switching Current	DC or peak AC			1.0	A
Carry Current	DC or peak AC			2.5	A
Static Contact Resistance	w/ 0.5V & 10mA			150	mΩ
Dynamic Contact Resistance	Measured w/ 0.5V & 50mA 1.5 ms after closure			200	mΩ
Insulation Resistance across Contacts	100 Volts applied	10 <sup>10</sup>			Ω
Breakdown Voltage	Voltage applied for 60 sec. min.	2			kVDC
Operate Time, Incl. Bounce	Measured w/ 100% overdrive			0.75	ms
Release Time	Measured w/ no coil suppression			0.1	ms
Capacitance	@ 10kHz across contact		0.2		pF
Test Coil **		KMS-01			
Standard AT range		20		50	AT
<b>Environmental Data</b>					
Shock Resistance	1/2 sine wave duration 11ms			50	g
Vibration Resistance	From 10 - 2000 Hz			20	g
Ambient Temperature	10 °C/ minute max. allowable	-20		130	°C
Storage Temperature	10 °C/ minute max. allowable	-55		130	°C
Soldering Temperature	5 sec. dwell			260	°C
Please note: The indicated electrical data are maximum values and can vary downwards when using a more sensitive switch.					
* For life expectancy see our life test section located on page 151.					
** See our test coil section located on page 157.					

**ORDER INFORMATION**

SERIES	CONTACT FORM	SWITCH MODEL	AT RANGE (between)
KSK -	1A	53 -	XXXX
OPTIONS			20 50

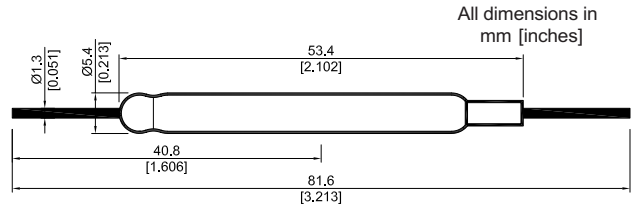
Part Number Example - KSK - 1A53 - 2025

2025 is the AT range (Any AT can be ordered between 20 & 50 in a minimum range of 5 AT)

## CHARACTERISTICS

- Glass length of 53.4 mm and diameter of 5.4 mm
- Normally open 1 Form A contact
- Copper-plated RF switch
- Insulation voltage up to 9 kVDC possible
- Carry current 5 A
- Suitable for numerous RF applications

## DIMENSIONS



## CONTACT DATA

All data at 20 °C	Switch Model → Contact Form →	KSK-1A54-... Form A			
Contact Ratings	Conditions	Min.	Typ.	Max.	Units
Contact Rating *	Any DC combination of V & A not to exceed their individual max.'s			25	W
Switching Voltage	DC or peak AC			500	V
Switching Current	DC or peak AC			1.5	A
Carry Current	DC or peak AC			5.0	A
Static Contact Resistance	w/ 0.5V & 10mA			150	mΩ
Dynamic Contact Resistance	Measured w/ 0.5V & 50mA 1.5 ms after closure			200	mΩ
Insulation Resistance across Contacts	100 Volts applied	10 <sup>10</sup>			Ω
Breakdown Voltage	Voltage applied for 60 sec. min.	5			kVDC
Operate Time, incl. Bounce	Measured w/ 100% overdrive			3.0	ms
Release Time	Measured w/ no coil suppression			1.5	ms
Capacitance	@ 10kHz across contact		2.5		pF
Test Coil **		KMS-05			
Standard AT range		60		125	AT
<b>Environmental Data</b>					
Shock Resistance	1/2 sine wave duration 11ms			50	g
Vibration Resistance	From 10 - 2000 Hz			20	g
Ambient Temperature	10 °C/ minute max. allowable	-20		130	°C
Storage Temperature	10 °C/ minute max. allowable	-55		130	°C
Soldering Temperature	5 sec. dwell			260	°C
Please note: The indicated electrical data are maximum values and can vary downwards when using a more sensitive switch.					
* For life expectancy see our life test section located on page 151.					
** See our test coil section located on page 157.					

## ORDER INFORMATION

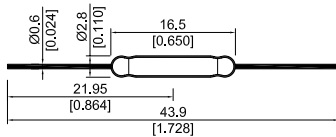
**Part Number Example - KSK - 1A54 - 100105**

100105 is the AT range (Any AT can be ordered between 60 & 125 in a minimum range of 5 AT)

SERIES	CONTACT FORM	SWITCH MODEL	AT RANGE (between)
KSK -	1A	54 -	XXXXXx
OPTIONS			60 125

## DIMENSIONS

All dimensions in mm [inches]



## CHARACTERISTICS

- Glass length of 16.5 mm and diameter of 2.8 mm
- Normally open 1 Form A contact
- Inrush current up to 3 A
- Excellent for lamp loads
- High power up to 50 W switching

## CONTACT DATA

All data at 20 °C	Switch Model → Contact Form →	KSK-1A55-... Form A			
Contact Ratings	Conditions	Min.	Typ.	Max.	Units
Contact Rating *	Any DC combination of V & A not to exceed their individual max.'s			50	W
Switching Voltage	DC or peak AC			200	V
Switching Current	DC or peak AC			0.5	A
Carry Current	DC or peak AC			3.0	A
Static Contact Resistance	w/ 0.5V & 10mA			150	mΩ
Dynamic Contact Resistance	Measured w/ 0.5V & 50mA 1.5 ms after closure			200	mΩ
Insulation Resistance across Contacts	100 Volts applied	10 <sup>9</sup>			Ω
Breakdown Voltage	Voltage applied for 60 sec. min.	250			VDC
Operate Time, incl. Bounce	Measured w/ 100% overdrive			1.0	ms
Release Time	Measured w/ no coil suppression			0.1	ms
Capacitance	@ 10kHz across contact		0.2		pF
Test Coil **		KMS-01			
Standard AT range		20		70	AT
<b>Environmental Data</b>					
Shock Resistance	1/2 sine wave duration 11ms			50	g
Vibration Resistance	From 10 - 2000 Hz			20	g
Ambient Temperature	10 °C/ minute max. allowable	-20		130	°C
Storage Temperature	10 °C/ minute max. allowable	-55		130	°C
Soldering Temperature	5 sec. dwell			260	°C
Please note: The indicated electrical data are maximum values and can vary downwards when using a more sensitive switch.					
* For life expectancy see our life test section located on page 151.					
** See our test coil section located on page 157.					

## ORDER INFORMATION

SERIES	CONTACT FORM	SWITCH MODEL	AT RANGE (between)
KSK -	1A	55 -	XXXX
OPTIONS			20 70

**Part Number Example - KSK - 1A55 - 2025**

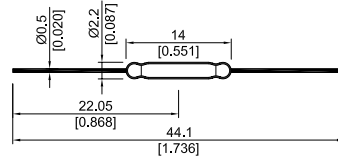
2025 is the AT range (Any AT can be ordered between 20 & 70 in a minimum range of 5 AT)

**CHARACTERISTICS**

- Glass length of 14 mm and diameter of 2.2 mm
- Normally open 1 Form A contact
- Excellent for most applications and long life expectancy

**DIMENSIONS**

All dimensions in mm [inches]



**CONTACT DATA**

All data at 20 °C	Switch Model → Contact Form →	KSK-1A66-... Form A			
Contact Ratings	Conditions	Min.	Typ.	Max.	Units
Contact Rating *	Any DC combination of V & A not to exceed their individual max.'s			10	W
Switching Voltage	DC or peak AC			200	V
Switching Current	DC or peak AC			0.5	A
Carry Current	DC or peak AC			1.25	A
Static Contact Resistance	w/ 0.5V & 10mA			150	mΩ
Dynamic Contact Resistance	Measured w/ 0.5V & 50mA 1.5 ms after closure			200	mΩ
Insulation Resistance across Contacts	100 Volts applied	10 <sup>10</sup>			Ω
Breakdown Voltage	Voltage applied for 60 sec. min.	225			VDC
Operate Time, incl. Bounce	Measured w/ 100% overdrive			0.5	ms
Release Time	Measured w/ no coil suppression			0.1	ms
Capacitance	@ 10kHz across contact		0.2		pF
Test Coil **		KMS-01			
Standard AT range		10		60	AT
<b>Environmental Data</b>					
Shock Resistance	1/2 sine wave duration 11ms			50	g
Vibration Resistance	From 10 - 2000 Hz			20	g
Ambient Temperature	10 °C/ minute max. allowable	-20		130	°C
Storage Temperature	10 °C/ minute max. allowable	-55		130	°C
Soldering Temperature	5 sec. dwell			260	°C
Please note: The indicated electrical data are maximum values and can vary downwards when using a more sensitive switch. * For life expectancy see our life test section located on page 151. ** See our test coil section located on page 157.					

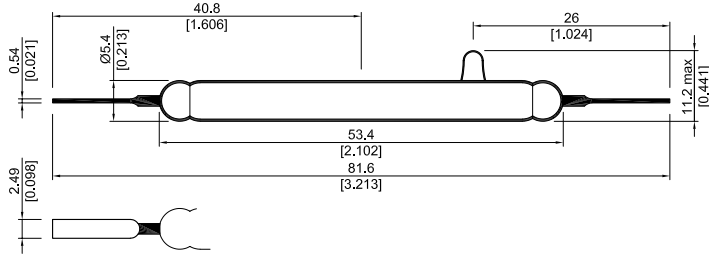
**ORDER INFORMATION**

**Part Number Example - KSK - 1A66 - 1015**

1015 is the AT range (Any AT can be ordered between 10 & 60 in a minimum range of 2 AT)

SERIES	CONTACT FORM	SWITCH MODEL	AT RANGE (between)
KSK -	1A	66 -	XXXX
OPTIONS			10 60

DIMENSIONS



CHARACTERISTICS

- Glass length of 53.4 mm and diameter of 5.4 mm
- Normally open 1 Form A contact
- High voltage switching and high power
- Carry current up to 5 A
- 15 kVDC breakdown voltage

CONTACT DATA

All data at 20 °C	Switch Model → Contact Form →	KSK-1A69-... Form A			
Contact Ratings	Conditions	Min.	Typ.	Max.	Units
Contact Rating *	Any DC combination of V & A not to exceed their individual max.'s			50	W
Switching Voltage	DC or peak AC			10	kV
Switching Current	DC or peak AC			3.0	A
Carry Current	DC or peak AC			5.0	A
Static Contact Resistance	w/ 0.5V & 10mA			150	mΩ
Dynamic Contact Resistance	Measured w/ 0.5V & 50mA 1.5 ms after closure			200	mΩ
Insulation Resistance across Contacts	100 Volts applied	10 <sup>10</sup>			Ω
Breakdown Voltage	Voltage applied for 60 sec. min.	15			kVDC
Operate Time, incl. Bounce	Measured w/ 100% overdrive			3.0	ms
Release Time	Measured w/ no coil suppression			1.5	ms
Capacitance	@ 10kHz across contact		0.8		pF
Test Coil **		KMS-04			
Standard AT range		120		170	AT
<b>Environmental Data</b>					
Shock Resistance	1/2 sine wave duration 11ms			50	g
Vibration Resistance	From 10 - 2000 Hz			20	g
Ambient Temperature	10 °C/ minute max. allowable	-20		130	°C
Storage Temperature	10 °C/ minute max. allowable	-55		130	°C
Soldering Temperature	5 sec. dwell			260	°C
Please note: The indicated electrical data are maximum values and can vary downwards when using a more sensitive switch.					
* For life expectancy see our life test section located on page 151.					
** See our test coil section located on page 157.					

ORDER INFORMATION

SERIES	CONTACT FORM	SWITCH MODEL	AT RANGE (between)
KSK -	1A	69 -	XXXXXX
OPTIONS			120 170

Part Number Example - KSK - 1A69 - 120130

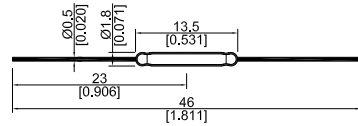
120130 is the pull in AT range (Any AT can be ordered between 120 & 170 in a minimum range of 10 AT)

## CHARACTERISTICS

- Glass length of 13.5 mm and diameter of 1.8 mm
- Normally open 1 Form A contact
- Excellent for most applications and long life expectancy

## DIMENSIONS

All dimensions in mm [inches]



## CONTACT DATA

All data at 20 °C	Switch Model → Contact Form →	KSK-1A71/7-... Form A			
Contact Ratings	Conditions	Min.	Typ.	Max.	Units
Contact Rating *	Any DC combination of V & A not to exceed their individual max.'s			10	W
Switching Voltage	DC or peak AC			200	V
Switching Current	DC or peak AC			0.5	A
Carry Current	DC or peak AC			1.75	A
Static Contact Resistance	w/ 0.5V & 10mA			150	mΩ
Dynamic Contact Resistance	Measured w/ 0.5V & 50mA 1.5 ms after closure			200	mΩ
Insulation Resistance across Contacts	100 Volts applied	10 <sup>12</sup>			Ω
Breakdown Voltage	Voltage applied for 60 sec. min.	310			VDC
Operate Time, incl. Bounce	Measured w/ 100% overdrive			0.5	ms
Release Time	Measured w/ no coil suppression			0.1	ms
Capacitance	@ 10kHz across contact		0.2		pF
Test Coil **		KMS-01			
Standard AT range		10		35	AT
<b>Environmental Data</b>					
Shock Resistance	1/2 sine wave duration 11ms			50	g
Vibration Resistance	From 10 - 2000 Hz			20	g
Ambient Temperature	10 °C/ minute max. allowable	-20		130	°C
Storage Temperature	10 °C/ minute max. allowable	-55		130	°C
Soldering Temperature	5 sec. dwell			260	°C
Please note: The indicated electrical data are maximum values and can vary downwards when using a more sensitive switch.					
* For life expectancy see our life test section located on page 151.					
** See our test coil section located on page 157.					

## ORDER INFORMATION

**Part Number Example - KSK - 1A71/7 - 1015**

1015 is the AT range (Any AT can be ordered between 10 & 35 in a minimum range of 2 AT)

SERIES	CONTACT FORM	SWITCH MODEL	AT RANGE (between)
KSK -	1A	71/7 -	XXXX
OPTIONS			10 35