
 C&K Switch Products 57 Stanley Ave. Watertown, MA 02472-4802	PRODUCT SPECIFICATION 	MM SERIES Description: SNAP SWITCH
		Date: 11/2/00 P/N 550B Approval:
		Reference documents: CKE51000;EIA RS-186; EIA RS-448; IEC 529

1.0 CONTACT RATING	CRITERIA	SPECIFICATION
1.1 GOLD CONTACT (F5 OPTION)	FINE SILVER WITH GOLD PLATED (MOVABLE) FINE SILVER WITH GOLD PLATE ON COPPER ALLOY (STATIONARY)	FROM LOW LEVEL TO 1 AMP @ 125 VAC, 30 VDC
1.2 SILVER CONTACTS (E2 OPTION)	FINE SILVER (MOVABLE) FINE SILVER ALLOY ON COPPER ALLOY (STATIONARY)	5 AMP @ 125, 250 VAC
1.3 SILVER CONTACT (D1 OPTION)	FINE SILVER (MOVABLE) FINE SILVER INLAY ON COPPER ALLOY (STATIONARY)	<u>SEA LEVEL</u> 7 AMP 125, 250 VAC; 7 AMP 28 VDC RESISTIVE; 4 AMP 28 VDC INDUCTIVE; 2.5 AMP 28 VDC LAMP
1.4 ELECTRICAL LIFE	EROSION OF THE CONTACTS IS THE PRIMARY LIMITATION TO ELECTRICAL LIFE OF A SWITCH. IN GENERAL, CONTACTS ERODE MORE QUICKLY AS CURRENT OR VOLTAGE IS INCREASED AND POWER FACTOR IS DECREASED. THE DATA SHOWS ELECTRICAL LIFE OF SWITCHES TESTED UNDER ORDINARY ATMOSPHERIC CONDITIONS, OPERATED 60 TIMES A MINUTE WITH 60 CYCLES 250 VOLTS AC POWER HANDLING ON BOTH NORMALLY OPEN AND CLOSE CONTACTS. THE HIGH INRUSH CURRENT ENCOUNTERED IN LAMP LOADS AND IN MOTOR OR OTHER INDUCTIVE LOADS IS RESPONSIBLE FOR DECREASED LIFE UNDER SUCH LOADING.	
	<u>FAILURE CRITERIA</u> CONTACT RESISTANCE >100 MILLIOHMS TEMPERATURE RISE > 30°C OVER AMBIENT	
1.5 MECHANICAL LIFE	THE FOLLOWING INFORMATION IS BASED UPON: 1) NON-IMPACT ACTUATION 2) ACTUATOR TRAVELING FROM FREE POSITION TO FULL OVERTRAVEL POSITION (OVERTRAVEL FORCE SHOULD BE LIMITED TO A MAXIMUM OF THREE TIMES THE OPERATE FORCE OF THE SWITCH FOR BEST MECHANICAL LIFE)	

	<u>FAILURE CRITERIA</u>	
	FATIGUE OF INTERNAL SPRING BLADE CONTACT RESISTANCE >75 MILLIOHMS	
	PIN TYPE: >100,000 CYCLES LEVER TYPE: >300,000 CYCLES	

2.0 INITIAL VALUE

2.1 CONTACT RESISTANCE	6 VOLT DC @ 100 MILLAMPS	50 MILLOHMS MAX.
2.2 INSULATION RESISTANCE	100 MEGOHMS – ACROSS OPEN CONTACTS 100 MEGOHMS – POLE TO POLE 100 MEGOHMS – TERMINAL-TO-COVER	1000 MEGOHMS MIN.
2.3 DIELECTRIC STRENGTH	VOLTS RMS @ 60 HZ. @ SEA LEVEL MEASURED ACROSS OPEN CONTACTS	5 PICO FARADS MAX.
2.4 CAPACITANCE	VOLTS RMS @ 60 HZ. @ SEA LEVEL MEASURED ACROSS OPEN CONTACTS	>250 V RMS
2.5 ACTUATION FORCE (grams) GG (OPTION)	CRITERIA 140 GRAMS MAX	TYPICAL RANGE 85 TO 142 GRAMS
2.6 RELEASE FORCE (grams) GG (OPTION)	28 GRAMS MIN	28 TO 65 GRAMS
2.7 DIFFERENTIAL MOTION (inches)	.002 MAX	.0005 TO .002
2.8 PRETRAVEL (inches)	.200 MAX	.005 TO .020
2.9 OVERTRAVEL (Minimum) (inches)	.004 MIN	.004 TO .010

3.0 TECHNICAL DATA

3.1 CONTACT GAP (inches)	.015 NOMINAL PRODUCTION RANGE (.010 TO .015)	
3.2 CONTACT FORCE	22 GRAMS ON NORM OPEN AND CLOSED CONTACTS	
3.3 CONTACT TRANSFER TIME	1 TO 10 MILLISEC	
3.4 CONTACT BOUNCE TIME	5 TO 6 MILLISEC	
3.5 STEADY STATE HUMIDITY	240 HOURS @ 40 C AND 95% RH	CR<50 milliohms IR>10 ⁸ OHMS
3.6 SALT SPRAY	SALT FOG 5% NaCl FOR 96 HOURS	No Physical Damage
3.7 THERMAL SHOCK	5 CYCLES WITH 30 MINUTE EXPOSURE AT -25°C AND +85°C	CR<50 milliohms DWV>250 VOLTS
3.8 VIBRATION FATIGUE (LOW FREQUENCY)	10-55 hz, 1 MINUTE SWEEP	CR<50 milliohms No Physical Damage
3.9 VIBRATION FATIGUE (HIGH FREQUENCY)	10-500 hz, 15 MINUTE SWEEP, 10G's	CR<50 milliohms No Physical Damage

3.10 SHOCK	HALFSINE, 50G's, 11 MILLISECONDS, 11.3 FT/SEC.	CR<50 milliohms No Physical Damage
3.11 EFFECT OF SOLDERING	DIP TERMINALS IN SOLDER POT, 260°C, 60/40 TIN LEAD FOR 10 SECONDS	CR<50 milliohms No Physical Damage
3.12 SOLDERABILITY	1 HR STEAM AGE, TYPE R FLUX, 232°C, FOR 5 SECONDS	>95% COVERAGE
3.13 RESISTANCE TO SOLVENTS	APPLY SOLVENTS TO MARKING AND PALSTICS	No Physical Damage
3.14 ROBUSTNESS OF TERMINALS	APPLY 10LB AXIAL LOAD TO TERMINALS	No Physical Damage
3.15 COLD AGING	96 HURS AT -55°C	CR <50 milliohms
3.16 HEAT AGING	96 HOURS AT 135°C	CR <50 milliohms

4.0 MATERIALS

CASE	HEAT RESISTANT PHENOLIC UL94V-0
COVER	HEAT RESISTANT PHENOLIC UL94V-0
ACTUATOR	HEAT RESISTANT PHENOLIC UL94V-0
TERMINALS	COPPER ALLOY
BLADE	BERYLLIUM COPPER
MOVEABLE CONTACTS	1 AMP OR LESS FINE SILVER GOLD PALTED (24K). GREATER THAN 1 AMP TO 7 AMPS FINE SILVER.
STATIONARY CONTACTS	1 AMP OR LESS FINE SILVER GOLD PLATED (24K). GREATER THAN 1 AMP TO 7 AMS FINE SILVER. WELDED ON COPPER ALLOY.
LEVERS	302 STAINLESS STEEL

5.0 TEMPERATURE SPECIFICATION

OPERATING RANGE	-55°C TO 135°C	
-----------------	----------------	--

6.0 MOUNTING INFORMATION

TORQUE ON MOUNTING SCREW SHOULD NOT EXCEED 2 IN/LBS MAX
UL 310 STANDARD FOR QUICK CONNECT TERMINALS UL FILE E42363 CSA FILE LR29210