MICRO SWITCH

product sheet **53SD5-2**

MOS ENCODED COMMUNICATIONS SOLID STATE KEYBOARD

The 53SD5-2 is a low-profile, modestly priced keyboard, ideally suited to conversational time sharing terminals for online inquiry. The keyboard utilizes the time-proven technology and reliability that made MICRO SWITCH the number one solid state keyboard manufacturer. The keyboard incorporates the proven approach of MICRO SWITCH Hall-effect solid state keys coupled to MOS encoding, thus eliminating all moving parts except the key plunger. MOS increases the number of functions the keyboard can perform, while at the same time allowing significant cost reduction by reducing the number of components required.

The "Model 33" array, similar to typewriter keyboards, is familiar to thousands of operators and thus trained touch typists will readily adapt. Every aspect of the keyboard is designed for maximum operator throughput. This includes operating force, key spacing, button shapes, legending, and silent operation. In addition, an electronic two-key rollover is built into the keyboard circuit. It allows the operator to roll keys during "burst speed" typing of familiar words without entering an erroneous code.

The keyboard is encoded with the USASCII code. There are four modes of operation:

Mode 1, unshifted, the code for the characters appearing as the bottom characters on the keytop is generated.

Mode 2, shifted, the code for the characters appearing as the top characters on the keytop is generated.

Mode 3, control, the code for non-printing functions is generated.

Mode 4, control and shift, the code for special non-printing control functions is generated. The code and character assignments are given on page 3.

features

HALL EFFECT SOLID STATE KEYS COUPLED TO MOS ENCODING . . . Gives greater reliability with significant cost reduction.

FAMILIAR "MODEL 33" ARRAY . . . Ideally suited for on-line inquiries.

USASCII CODE ASSIGNMENT . . . With four modes of operation.

TWO-KEY ROLLOVER . . . Permits high speed operation.

QUIET OPERATION . . . Only moving part is the key plunger.

STOCK KEYBOARD . . . For "Off-The-Shelf" availability.

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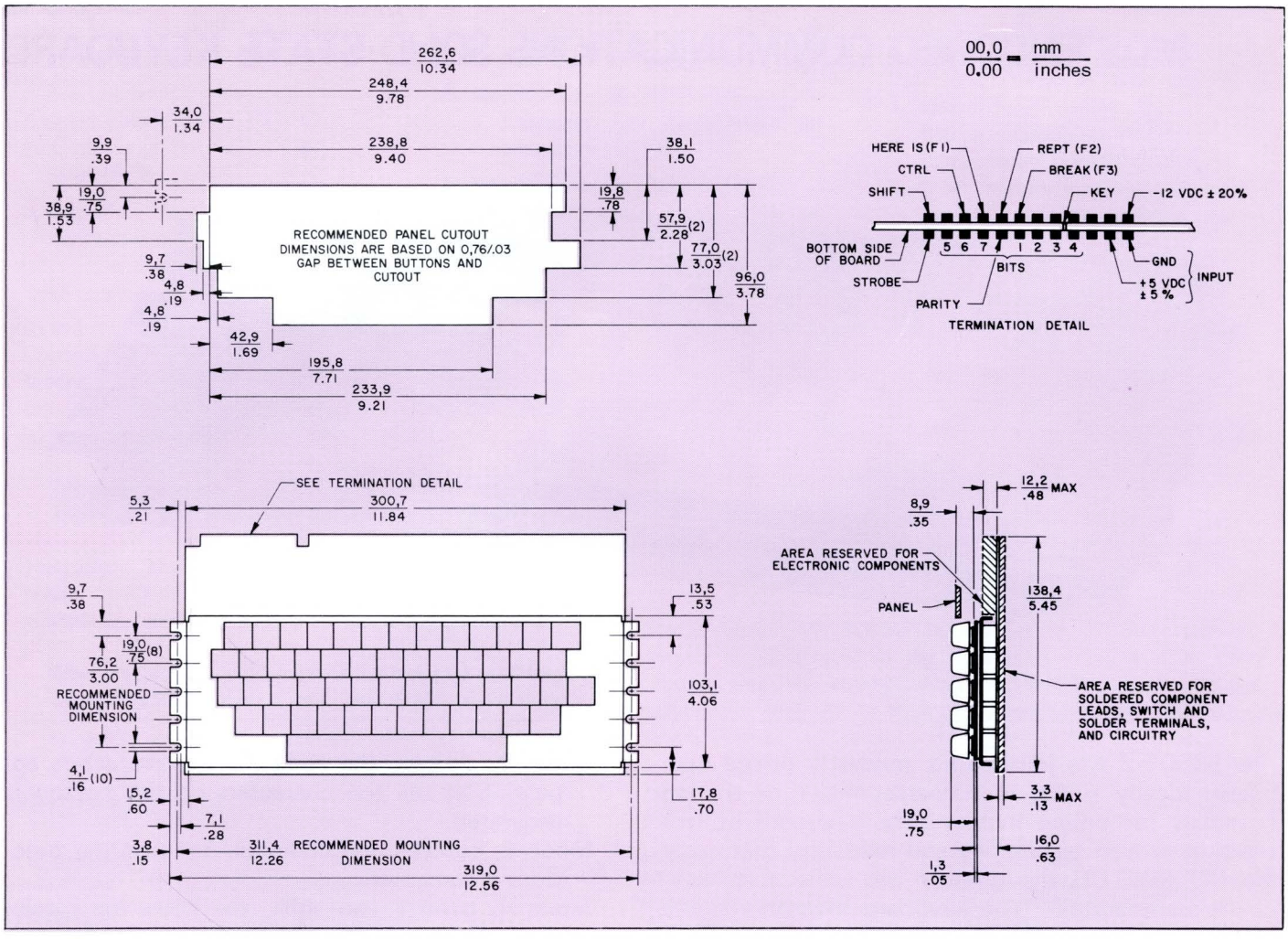
MOUNTING DIMENSIONS (For Reference Only)



SPECIFICATIONS

ELECTRICAL DATA

Power Requirements	+5 VDC ±5% @ 500 mA max., 250 mA Typ. −12 VDC ±20% @ 50 mA max., 40 mA Typ. Keyboard Ground @ 0 Volts Note: Tolerances include ripple
Data Key Outputs (Positive Logic)	*Logic "0":* 0.40 VDC max. @ 16 mA max. (sinking). *Logic "1":* +2.4 VDC min. @ 400 μA max. (sourcing). Data bits are held in memory until the next key is depressed.*
Function Key Outputs	*Key Operated: 0.4 VDC max. @ 8 mA max. (sinking)* *Key Unoperated: 2.4 VDC min. @ 200 uA max. (sourcing)* F1 = HERE IS (Station 17) F2 = REPT (Station 56) F3 = BREAK (Station 57)
STROBE	(DC Level Strobe will go to a logic "1" .5 microseconds minimum after data bits are stable.

TERMINATION

Card edge output with gold plated terminals accepts standard connectors such as: Cinch 251-12-30-160 with Type III Key. (No connector is furnished with this listing.)

BUTTONS

MICRO SWITCH double-shot molded truncated buttons, medium gray with white legends for touch typing keys and dark gray with white legends for all control and function keys. All buttons have a matte finish.

KEY ROW OFFSET

3/8 – 3/16 – 3/8 inch

KEY SPACING

Keys spaced 3/4 inch center-to-center.

BUTTON ORIENTATION

Sloped

WEIGHT

With Enclosure and Connector: 7.5 lbs. Approx. (53SD5-1)
Without Enclosure and No Connector: 1.75 lbs. Approx. (53SD5-2)

*Bit 7 is always latched in Modes 1 and 2. Bit 7 will be latched in Modes 3 and 4 for keys 25 thru 34 and 46 thru 53 only while the Control key (44) is held depressed.

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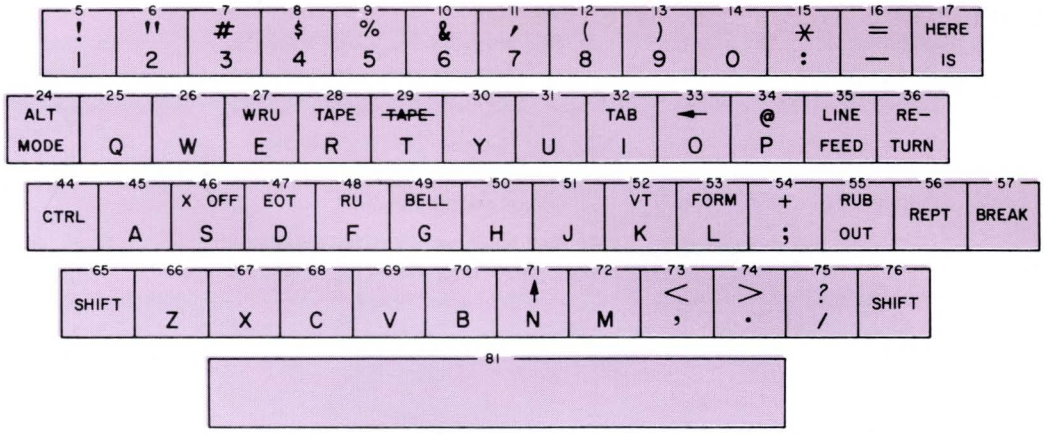
CHARACTER ASSIGNMENT



KEY NO.	MODE 1				MODE 2				MODE 3				MODE 4			
	CHAR.	P	765	4321	CHAR.	P	765	4321	CHAR.	P	765	4321	CHAR.	P	765	4321
5	1	0	011	0001	!	1	010	0001	1	0	011	0001	!	1	010	0001
6	2	0	011	0010	"	1	010	0010	2	0	011	0010	"	1	010	0010
7	3	1	011	0011	#	0	010	0011	3	1	011	0011	#	0	010	0011
8	4	0	011	0100	$	1	010	0100	4	0	011	0100	$	1	010	0100
9	5	1	011	0101	%	0	010	0101	5	1	011	0101	%	0	010	0101
10	6	1	011	0110	&	0	010	0110	6	1	011	0110	&	0	010	0110
11	7	0	011	0111	'	1	010	0111	7	0	011	0111	'	1	010	0111
12	8	0	011	1000	(	1	010	1000	8	0	011	1000	(	1	010	1000
13	9	1	011	1001	)	0	010	1001	9	1	011	1001	)	0	010	1001
14	Ø	1	011	0000	Ø	1	011	0000	Ø	1	011	0000	Ø	1	011	0000
15	:	1	011	1010	*	0	010	1010	:	1	011	1010	*	0	010	1010
16	—	1	010	1101	=	0	011	1101	—	1	010	1101	=	0	011	1101
17	(F1) FUNCTION OUTPUT															
24	}	1	111	1101	}	1	111	1101	}	1	111	1101	}	1	111	1101
25	Q	0	101	0001	Q	0	101	0001	DC1	1	001	0001	DC1	1	001	0001
26	W	0	101	0111	W	0	101	0111	ETB	1	001	0111	ETB	1	001	0111
27	E	0	100	0101	E	0	100	0101	ENQ	1	000	0101	ENQ	1	000	0101
28	R	0	101	0010	R	0	101	0010	DC2	1	001	0010	DC2	1	001	0010
29	T	0	101	0100	T	0	101	0100	DC4	1	001	0100	DC4	1	001	0100
30	Y	1	101	1001	Y	1	101	1001	EM	0	001	1001	EM	0	001	1001
31	U	1	101	0101	U	1	101	0101	NAK	0	001	0101	NAK	0	001	0101
32	I	0	100	1001	I	0	100	1001	HT	1	000	1001	HT	1	000	1001
33	O	0	100	1111	—	1	101	1111	SI	1	000	1111	US	0	001	1111
34	P	1	101	0000	@	0	100	0000	DLE	0	001	0000	NUL	1	000	0000
35	LF	1	000	1010	LF	1	000	1010	LF	1	000	1010	LF	1	000	1010
36	CR	0	000	1101	CR	0	000	1101	CR	0	000	1101	CR	0	000	1101
44	CTRL (MODE SELECTION KEY)															
45	A	1	100	0001	A	1	100	0001	SOH	0	000	0001	SOH	0	000	0001
46	S	1	101	0011	S	1	101	0011	DC3	0	001	0011	DC3	0	001	0011
47	D	1	100	0100	D	1	100	0100	EOT	0	000	0100	EOT	0	000	0100
48	F	0	100	0110	F	0	100	0110	ACK	1	000	0110	ACK	1	000	0110
49	G	1	100	0111	G	1	100	0111	BEL	0	000	0111	BEL	0	000	0111
50	H	1	100	1000	H	1	100	1000	BS	0	000	1000	BS	0	000	1000
51	J	0	100	1010	J	0	100	1010	LF	1	000	1010	LF	1	000	1010
52	K	1	100	1011	[	0	101	1011	VT	0	000	1011	ESC	1	001	1011
53	L	0	100	1100	\	1	101	1100	FF	1	000	1100	FS	0	001	1100
54	;	0	011	1011	+	1	010	1011	;	0	011	1011	+	1	010	1011
55	DEL	0	111	1111	DEL	0	111	1111	DEL	0	111	1111	DEL	0	111	1111
56	(F2) FUNCTION OUTPUT															
57	(F3) FUNCTION OUTPUT															
65	SHIFT (MODE SELECTION KEY)															
66	Z	1	101	1010	Z	1	101	1010	SUB	0	001	1010	SUB	0	001	1010
67	X	0	101	1000	X	0	101	1000	CAN	1	001	1000	CAN	1	001	1000
68	C	0	100	0011	C	0	100	0011	ETX	1	000	0011	ETX	1	000	0011
69	V	1	101	0110	V	1	101	0110	SYN	0	001	0110	SYN	0	001	0110
70	B	1	100	0010	B	1	100	0010	STX	0	000	0010	STX	0	000	0010
71	N	1	100	1110	^	0	101	1110	SO	0	000	1110	RS	1	001	1110
72	M	1	100	1101	]	0	101	1101	CR	0	000	1101	GS	1	001	1101
73	,	0	010	1100	<	1	011	1100	,	0	010	1100	<	1	011	1100
74	.	1	010	1110	>	0	011	1110	.	1	010	1110	>	0	011	1110
75	/	0	010	1111	?	1	011	1111	/	0	010	1111	?	1	011	1111
76	SHIFT (MODE SELECTION KEY)															
81	SP	0	010	0000	SP	0	010	0000	SP	0	010	0000	SP	0	010	0000

USASCII CODE ASSIGNMENT

MODE SELECTION

SHIFT LINES		
SHIFT	CONTROL	MODE
0	0	1 (Unshifted)
0	1	3 (Control)
1	0	2 (Shift)
1	1	4 (Shift-Control)

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OPTIONS

Additional flexibility has been engineered into the 53SD5-2 design to inexpensively provide the optional features:

1. Key Number 24 (ALT MODE)
   a. Code change to "ESC" — (0011011)
   b. Function key terminating on connector pin "C".
2. Key Number 35 (LINE FEED)
   a. Function key terminating on connector pin "D".
3. Key Number 36 (RETURN)
   a. Function key terminating on connector pin "E".
4. Key Number 55 (RUB OUT)
   a. Function key terminating on connector pin "F".
5. Negative logic for data bits and strobe.
6. Even or odd parity.
7. Tri-shot buttons, with legends in two different colors, may be specified for visual separation of keys that generate control codes.
8. If an enclosure and connector are desired, order catalog listing 53SD5-1.
9. NKRO (N-Key Rollover)

SYSTEM INDICATION AND CONTROL

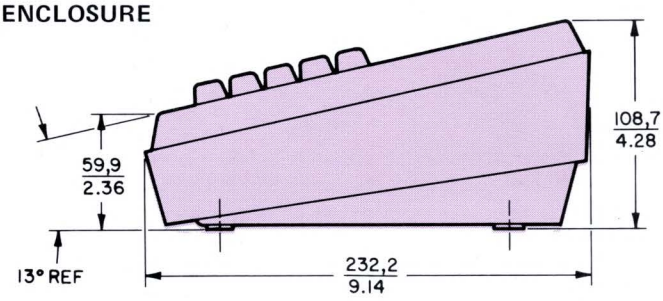
1. Control: The keyboard can be externally shifted between Modes 1 thru 4 by providing an open-collector TTL gate at pin 'N' (Shift) and pin 'L' (Control) of the connector and by supplying the following drive capability:

   Input active, 0.4 VDC max. @ 4.8 mA max. sinking.
   Input inactive, 2.4 VDC min. @ 200μA max. leakage.

2. Indication: The shift and control lines can also be used as mode identification to your system. These outputs are TTL compatable and capable of driving the following load:

   Mode active, 0.4 VDC max. @ 3.2 mA max. sinking.
   Mode inactive, 2.4 VDC min. @ 200μA max. leakage.

ENCLOSURE



As an option MICRO SWITCH offers an enclosure and connector as illustrated in the dimension drawing. The cover is dark gray high strength ABS and the base is light gray cast aluminum alloy. If an enclosure is needed order catalog listing 53SD5-1.

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ORDERING INFORMATION

Contact your nearest MICRO SWITCH Branch Office and an experienced Field Engineer will be happy to work with you in satisfying your keyboard requirements: proper selection, pricing, and delivery scheduling. These experienced keyboard experts will provide sound and practical answers to your needs.

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