5V/3.3V 2:1 MULTIPLEXER

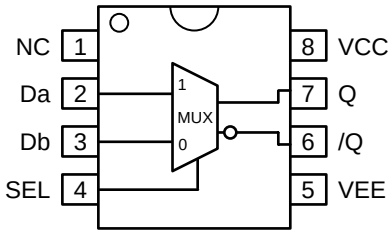
FEATURES

- **3.3V and 5V power supply options**
- **275ps typical propagation delay**
- **High bandwidth to XGHz min.**
- **75kΩ internal input pulldown resistors**
- **Q output will default LOW with inputs open or at V_{EE}**
- **Available in 8-pin SOIC and 10-pin MSOP packages**

DESCRIPTION

The SY10EP58V is a 2:1 multiplexer. The device is pin and functionally equivalent to the SY100EL58 device.

PIN CONFIGURATION/BLOCK DIAGRAM



Available in 8-Pin SOIC or MSOP package

PIN NAMES

Pin	Function
Da, Db	ECL Data Inputs
SEL	ECL Select Inputs
Q, /Q	ECL Data Outputs

ABSOLUTE MAXIMUM RATINGS[1]

Symbol	Rating	Value	Unit
V_{CC}	Power Supply Voltage (V_{EE} = 0)	–6.0 to 0	Vdc
V_{EE}	Power Supply Voltage (V_{CC} = 0)	+6.0 to 0	Vdc
V_I	Input Voltage (V_{CC} = 0V)	–6.0 to 0	Vdc
V_I	Input Voltage (V_{EE} = 0V)	+6.0 to 0	Vdc
I_{OUT}	Output Current –Continuous –Surge	50 100	mA
T_A	Operating Temperature Range	–40 to +85	°C
T_{store}	Storage Temperature Range	–65 to +150	°C

NOTE:

1. Permanent device damage may occur if ABSOLUTE MAXIMUM RATINGS are exceeded. This is a stress rating only and functional operation is not implied at conditions other than those detailed in the operational sections of this data sheet. Exposure to ABSOLUTE MAXIMUM RATING conditions for extended periods may affect device reliability.

DC ELECTRICAL CHARACTERISTICS[1]

V_{CC} = 0V; V_{EE} = –5.5V to –3.0V or V_{CC} = +3.3V ±10%; V_{EE} = 0V or V_{CC} = +5.0V ±10%, V_{EE} = 0V[4]

Symbol	Parameter	T_A = –40°C		T_A = +25°C			T_A = +85°C		Unit
		Min.	Max.	Min.	Typ.	Max.	Min.	Max.	
I_{EE}	Power Supply Current[2]	20	40	20	30	40	22	40	mA
V_{OH}	Output HIGH Voltage[3]	V_{CC} –1135	V_{CC} –885	V_{CC} –1070	V_{CC} –945	V_{CC} –820	V_{CC} –1010	V_{CC} –760	mV
V_{OL}	Outuput LOW Voltage[3]	V_{CC} –1935	V_{CC} –1685	V_{CC} –1870	V_{CC} –1745	V_{CC} –1620	V_{CC} –1810	V_{CC} –1560	mV
V_{IH}	Input HIGH Voltage	V_{CC} –1210	V_{CC} –885	V_{CC} –1145	—	V_{CC} –820	V_{CC} –1085	V_{CC} –760	mV
V_{IL}	Input LOW Voltage	V_{CC} –1935	V_{CC} –1610	V_{CC} –1870	—	V_{CC} –1545	V_{CC} –1810	V_{CC} –1485	mV
I_{IH}	Input HIGH Current	—	150	—	—	150	—	150	µA
I_{IL}	Input LOW Current D	0.5	—	0.5	—	—	0.5	—	µA

NOTES:

1. 10EP circuits are designed to meet the DC specifications shown in the above table after thermal equilibrium has been established. The circuit is in a test socket or mounted on a printed circuit board and traverse airflow greater than 500lfpm is maintained.
2. V_{CC} = 0V, V_{EE} = –3.3V, all other pins floating.
3. All loading with 50Ω to V_{CC} –3.0V.
4. Input and output parameters vary 1:1 with V_{CC}.

AC ELECTRICAL CHARACTERISTICS

V_{CC} = 0V; V_{EE} = –5.5V to –3.0V or V_{CC} = +3.3V ±10%; V_{EE} = 0V or V_{CC} = +5.0V ±10%, V_{EE} = 0V

Symbol	Parameter	T_A = –40°C		T_A = +25°C			T_A = +85°C		Unit
		Min.	Max.	Min.	Typ.	Max.	Min.	Max.	
f_{MAX}	Maximum Toggle Frequency(1)	TBD	—	TBD	—	—	TBD	—	GHz
t_{PLH} t_{PHL}	Propagation Delay to Output Differential D→ Q, /Q SEL→ Q, /Q	170 170	350 350	190 190	275 275	375 375	210 210	400 400	ps ps
t_r t_f	Output Rise/Fall Times Q (20% to 80%)	60	190	60	130	200	70	220	ps

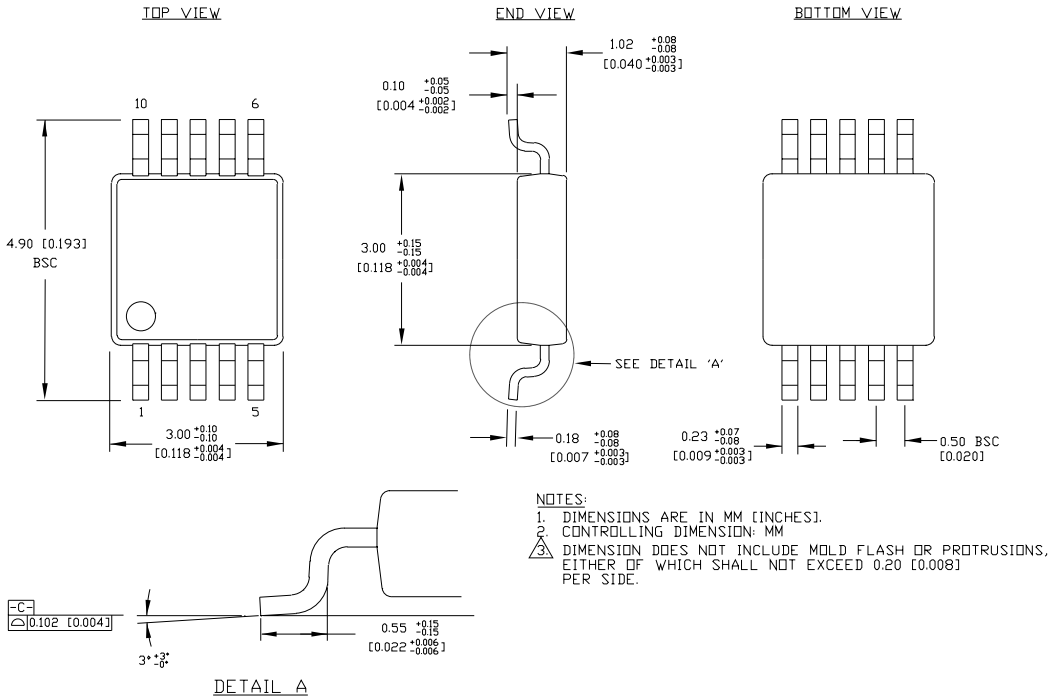
NOTES:

1. f_{MAX} guaranteed for functionality only.

PRODUCT ORDERING INFORMATION

Ordering Code	Package Type	Operating Range
SY10EP58VZC	Z8-1	Commercial
SY10EP58VZCTR	Z8-1	Commercial
SY10EP58VKC	K10-1	Commercial
SY10EP58VKCTR	K10-1	Commercial

10 LEAD MSOP (K10-1)



NOTES:
1. DIMENSIONS ARE IN MM [INCHES].
2. CONTROLLING DIMENSION: MM
3. DIMENSION DOES NOT INCLUDE MOLD FLASH OR PROTRUSIONS, EITHER OF WHICH SHALL NOT EXCEED 0.20 [0.008] PER SIDE.

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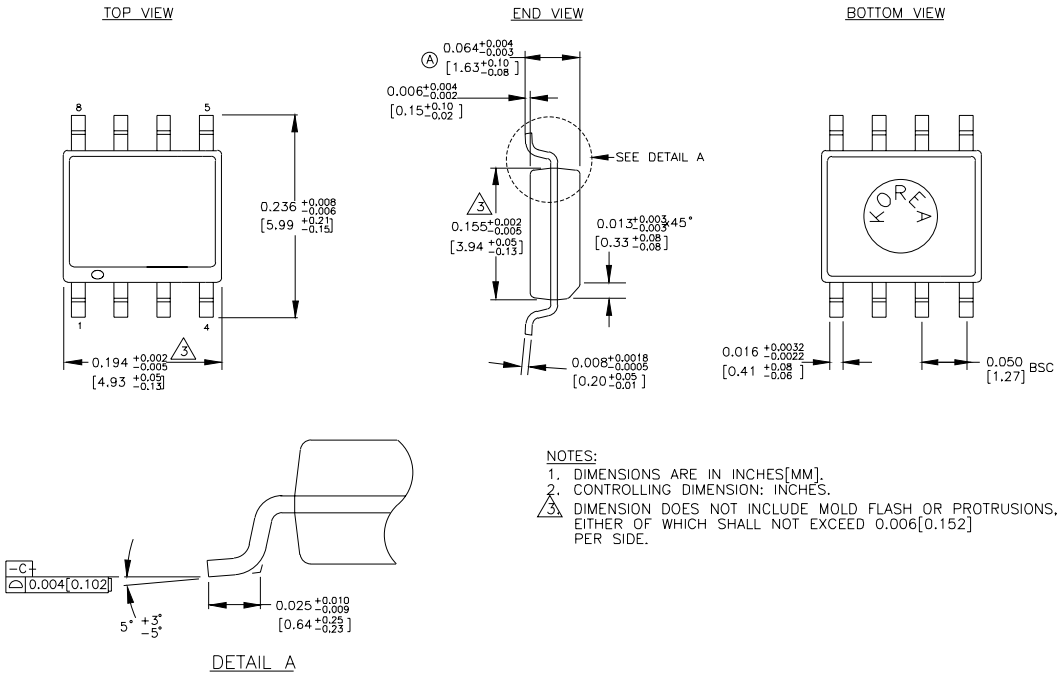
8 LEAD PLASTIC SOIC (Z8-1)



NOTES:
1. DIMENSIONS ARE IN INCHES[MM].
2. CONTROLLING DIMENSION: INCHES.
3. DIMENSION DOES NOT INCLUDE MOLD FLASH OR PROTRUSIONS, EITHER OF WHICH SHALL NOT EXCEED 0.006[0.152] PER SIDE.

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