

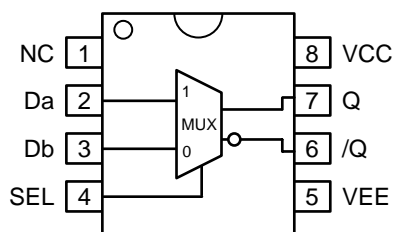
## FEATURES

- 3.3V and 5V power supply options
- 275ps typical propagation delay
- High bandwidth to XGHz min.
- 75k $\Omega$  internal input pulldown resistors
- Q output will default LOW with inputs open or at V<sub>EE</sub>
- 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<sup>(1)</sup>**

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<sup>(1)</sup>**

$V_{CC} = 0V$ ;  $V_{EE} = -5.5V$  to  $-3.0V$  or  $V_{CC} = +3.3V \pm 10\%$ ;  $V_{EE} = 0V$  or  $V_{CC} = +5.0V \pm 10\%$ ,  $V_{EE} = 0V$ <sup>(4)</sup>

Symbol	Parameter	$T_A = -40^\circ C$		$T_A = +25^\circ C$			$T_A = +85^\circ C$		Unit
		Min.	Max.	Min.	Typ.	Max.	Min.	Max.	
$I_{EE}$	Power Supply Current <sup>(2)</sup>	20	40	20	30	40	22	40	mA
$V_{OH}$	Output HIGH Voltage <sup>(3)</sup>	$V_{CC} - 1135$	$V_{CC} - 885$	$V_{CC} - 1070$	$V_{CC} - 945$	$V_{CC} - 820$	$V_{CC} - 1010$	$V_{CC} - 760$	mV
$V_{OL}$	Output LOW Voltage <sup>(3)</sup>	$V_{CC} - 1935$	$V_{CC} - 1685$	$V_{CC} - 1870$	$V_{CC} - 1745$	$V_{CC} - 1620$	$V_{CC} - 1810$	$V_{CC} - 1560$	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  $50\Omega$  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  $V_{CC} = +3.3V \pm 10\%$ ;  $V_{EE} = 0V$  or  $V_{CC} = +5.0V \pm 10\%$ ,  $V_{EE} = 0V$

Symbol	Parameter	$T_A = -40^\circ C$		$T_A = +25^\circ C$			$T_A = +85^\circ C$		Unit
		Min.	Max.	Min.	Typ.	Max.	Min.	Max.	
$f_{MAX}$	Maximum Toggle Frequency <sup>(1)</sup>	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 (20% to 80%) Q	60	190	60	130	200	70	220	ps

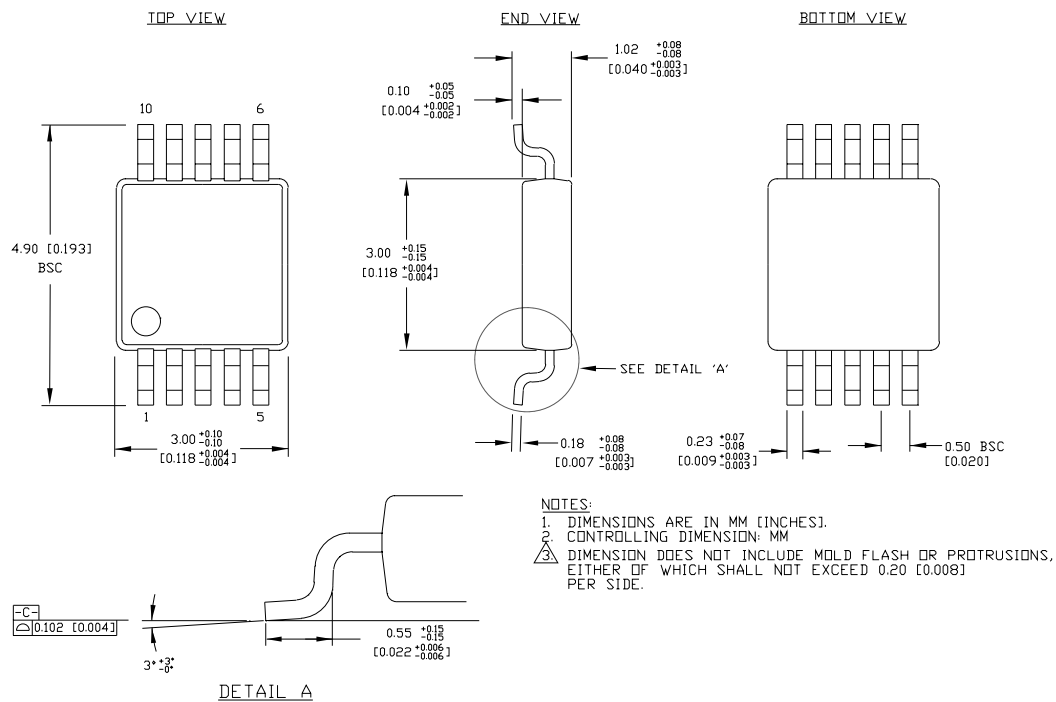
### NOTES:

1.  $f_{MAX}$  guaranteed for functionality only.

## PRODUCT ORDERING INFORMATION

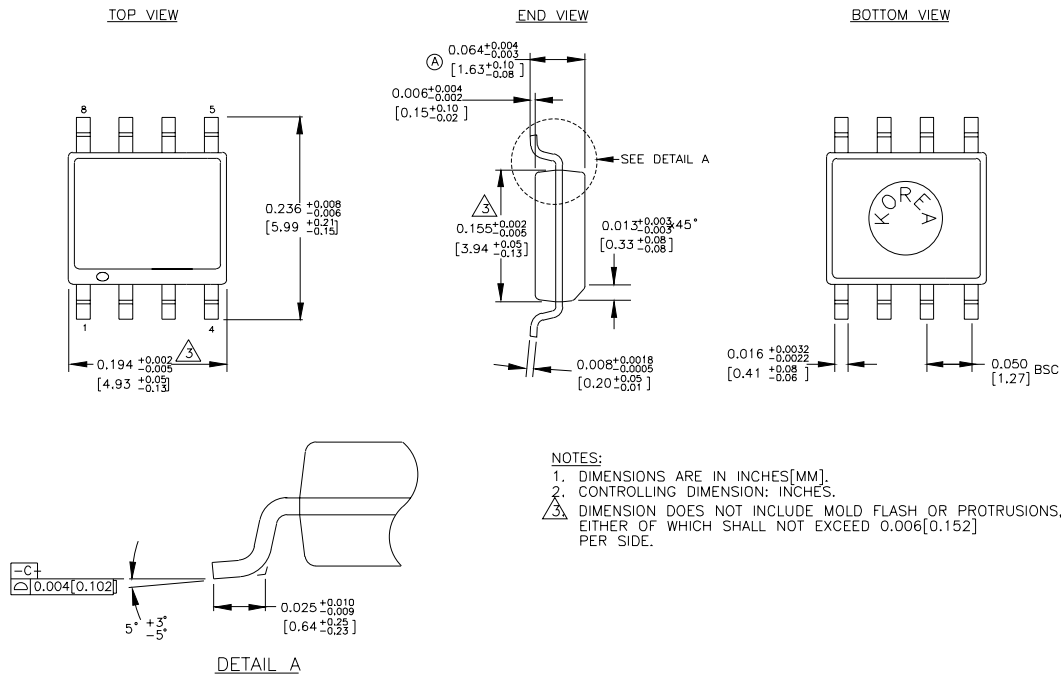
Ordering Code	Package Type	Operating Range
SY10EP58VZC	Z8-1	Commercial
SY10EP58VZCTR	Z8-1	Commercial
SY10EP58VKC	K10-1	Commercial
SY10EP58VKCTR	K10-1	Commercial

## 10 LEAD MSOP (K10-1)



Rev. 00

# 8 LEAD PLASTIC SOIC (Z8-1)



Rev. 03

**MICREL-SYNERGY 3250 SCOTT BOULEVARD SANTA CLARA CA 95054 USA**

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