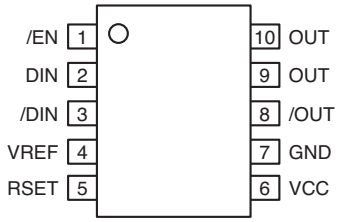
PACKAGE/ORDERING INFORMATION



10-Pin MSOP (K10-1)

Ordering Information[1]

Part Number	Package Type	Operating Range	Package Marking	Lead Finish
SY88922VKC	K10-1	Commercial	SY88922V	Sn-Pb
SY88922VKCTR[2]	K10-1	Commercial	SY88922V	Sn-Pb
SY88922VKG	K10-1	Industrial	SY88922V with Pb-Free bar-line indicator	Pb-Free NiPdAu
SY88922VKGTR[2]	K10-1	Industrial	SY88922V with Pb-Free bar-line indicator	Pb-Free NiPdAu

Notes:

1. Contact factory for die availability. Die is guaranteed at T_A = 25°C, DC electricals only.
2. Tape and Reel.

PIN DESCRIPTION

Pin Number	Pin Name	Pin Function
1	/EN	Enable. This PECL 100k compatible input enables Laser Driver. Modulation current goes to zero when asserted HIGH.
2, 3	DIN, /DIN	Differential PECL 100k compatible inputs which receive NRZ data.
4	VREF	Voltage reference for use with R_{SET}.
5	RSET	An external resistor sets up the source current for modulation I_{MOD}.
6	VCC	Most positive power supply input.
7	GND	Ground.
8, 9, 10	/OUT, OUT	Open collector outputs from the modulation buffer drive these differential current outputs.

TRUTH TABLE[1]

D	/D	/EN	OUT [2]	/OUT
L	H	L	H	L
H	L	L	L	H
X	X	H	H	L

Notes:

1. L = LOW, H = HIGH, X = don't care.
2. H = I_{OUT} = 0mA.

Absolute Maximum Ratings[1]

Supply Voltage (V_{CC}) ..... +0V to +7.0V
Input Voltage (V_{IN}) ..... 0 to V_{CC}
Output Current (V_{OUT}) 30mA
Power Dissipation (P_D) 250mW
Lead Temperature (soldering, 20 sec.) ..... 260°C
Maximum Operating Junction Temperature (T_J) ..... +125°C
Storage Temperature (T_S) ..... –55°C to +125°C

Operating Ratings[2]

Supply Voltage (V_{CC}) ..... +4.5V to +5.5V or
..... +3.0V to +3.6V
Ambient Temperature (T_A) ..... –40°C to +85°C
Capacitance on OUT + /OUT (C_{OUT}) ..... 2.5pF (typ.)
Resistor to Dissipate Power (R_{EXT}) ..... 10 to 50Ω
Laser Diode Serial Resistor (R_{SER}) ..... 0 to 50Ω
Resistor to Adjust Current (R_{SET})[4] ..... 700 to 20,000Ω
Package Thermal Resistance[3]
MSOP (θ_{JA}) Still-air ..... 113°C/W
MSOP (Ψ_{JB}) ..... 74°C/W

DC ELECTRICAL CHARACTERISTICS

GND = 0V; V_{CC} = +5.0V ±10% or V_{CC} = +3.3V ±10%; T_A = –40°C to +85°C; unless noted.

Symbol	Parameter	Condition	Min	Typ	Max	Units
V_{IH}	Input HIGH Voltage (D_{IN}, /D_{IN}, /EN)		V_{CC} –1165		V_{CC} –880	mV
V_{IL}	Input LOW Voltage (D_{IN}, /D_{IN}, /EN)		V_{CC} –1810		V_{CC} –1475	mV
V_{REF}	Reference Voltage		1.7	2.0	2.3	V
I_{IL}	Input LOW Current (D_{IN}, /D_{IN}, /EN)[5]		0.5			µA
I_{IH}	Input HIGH Current (D_{IN}, /D_{IN}, /EN)				100	µA
I_{CC}	Supply Current[6]				25	mA
I_{OL}	Output LOW Current (/EN = HIGH)			450	1000	µA
I_{OUT}	Modulation Current				30	mA
I_{RSET}	Modulation Control		0.125		0.625	mA
A_{RSET}	$=I_{OUT}/I_{RSET}$		30	38	44	—

Notes:

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 Ratings conditions for extended periods may affect device reliability.
2. The voltage drop across R_{EXT} and R_{SER} plus Laser Diode should not be greater than 1V.
3. Still-air without heatsink.
4. R_{SET} minimum 430Ω.
5. $V_{IN} = V_{IL}$ (min).
6. I_{MOD} = 25mA.

AC ELECTRICAL CHARACTERISTICS[7]

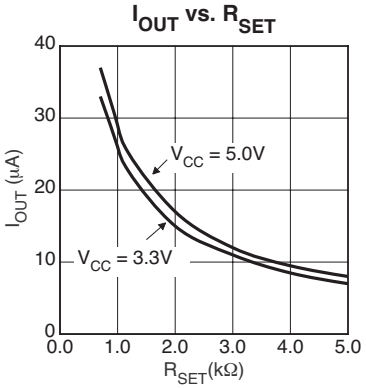
I_{MOD} =10mA; GND = 0V; V_{CC} = +5V ±10% or V_{CC} = +3.3V ±10%; T_A = –40°C to +85°C; unless noted.

Symbol	Parameter	Condition	Min	Typ	Max	Units
t_{pd} D	Propagation Delay (D_{IN} – OUT)			400		ps
t_{pd} EN	Propagation Delay (/EN – OUT)			400		ps
t_r, t_f	Rise/Fall Time[8] (20% to 80%)			74	130	ps
I_{OR}	Output Current Ringing[9]				10	%
D_J	Deterministic Jitter[10]			7		ps_{rms}

Notes:

7. R_{EXT} = R_{SER} = 25Ω ±1%; R_{SER} connects to V_{CC} directly without Laser Diode.
8. I_{MOD} = 10mA.
9. I_{OH} = 5 to 25mA.
10. I_{MOD} = 10mA, 2.5Gbps, 2^{23}–1 pattern.

TYPICAL CHARACTERISTICS



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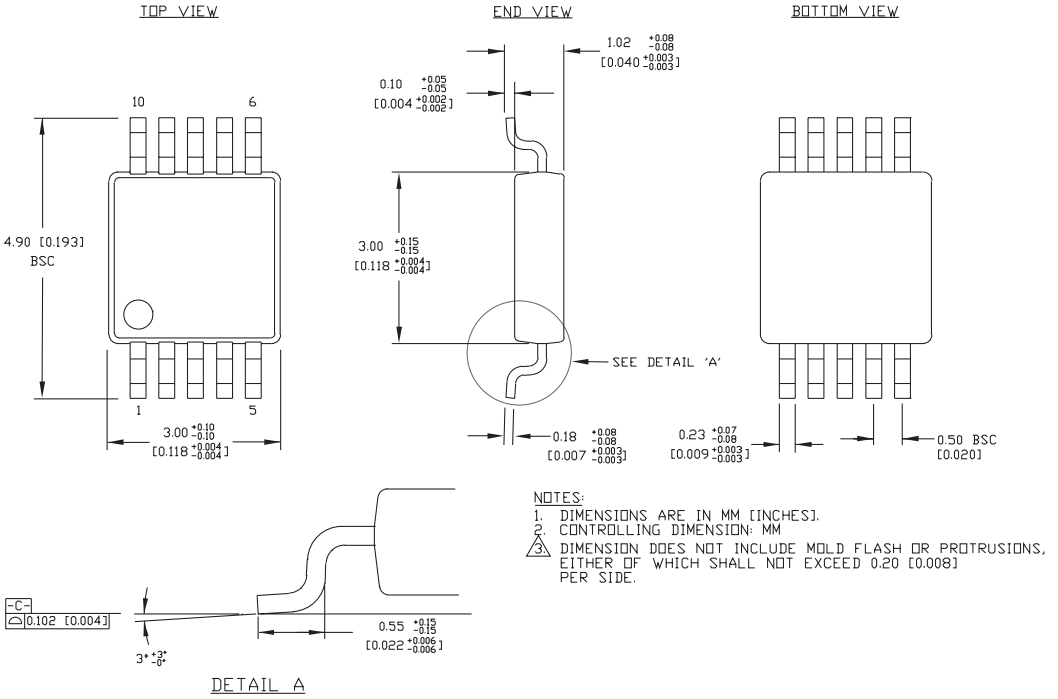

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