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## CSM800/801/810/811

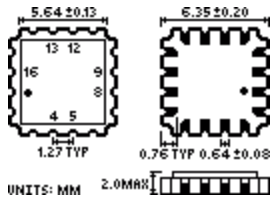
# Single Channel High Speed Hermetically Sealed Ceramic Optocoupler

## Circuit and Package



16 - Anode  
1 - Cathode

7 - GND  
8 - Vo  
9 - BASE (CSM810/811 **NOT CONNECTED**)  
10 - Vcc



## Features

- Hermetically sealed 16 pad leadless chip carrier
- High speed; Typ. 700 kbit/s (NRZ)
- 1500 Vdc withstand test voltage
- 4N55 function compatible
- Logic compatible
- Performance guaranteed over  $-55^{\circ}\text{C}$  to  $+125^{\circ}\text{C}$  ambient temperature range
- CSM801/811,  $15\% \leq \text{CTR} \leq 22\%$
- CSM810/811, base not connected for improved noise immunity

## Description

The CSM800 series are single channel devices hermetically sealed in 16 pad ceramic packages.

They incorporate a GaAlAs LED emitter and integrated photon detector.

CSM800/810 High speed, TTL compatible optocouplers.

CSM801/811 High speed, TTL compatible optocouplers for use in applications requiring matched or known CTR. At 16mA:  $15\% \leq \text{CTR} \leq 22\%$

The CSM810 and CSM811 are provided with the output transistor base not connected for greater immunity to noise and reduced ESD susceptibility.

Parts designated /L2 are subject to 100% high reliability screening.

## Absolute Maximum Ratings

### Input Diode

Peak forward current:	40mA ( $\leq 1\text{ms}$ duration)
Average forward current:	20mA
Reverse voltage:	3V

Power Dissipation:	36mW
Storage temperature:	-65°C to +150°C
Operating temperature:	-55°C to +125°C
Soldering:	260°C for 10s

## Output Detector

Supply voltage $V_{CC}$ :	0.5V to 20V
Average current $I_O$ :	8mA
Peak current $I_O$ :	16mA
Voltage $V_O$ :	-0.5V to 20V
Emitter-base rev. voltage $BV_{EBO}$ :	3V
Base current $I_B$ :	5mA
Collector power dissipation:	50mW

## Recommended Operating Conditions

PARAMETER	SYMBOL	MIN	MAX	UNIT
Input Current, Low level	$I_{EL}$		250	$\mu$ A
Input Current, High level	$I_{EL}$	16	20	mA
Supply Voltage	$V_{CC}$	2	18	V

## Electrical Characteristics

( $T_a = -55^\circ$  to  $+125^\circ$  C u.o.s.) \*All Typical values at  $V_{CC} = 5V$   $T_a = 25^\circ$  C

PARAMETER	SYMBOL	DEVICE	CONDITIONS	MIN	TYP*	MAX	UNIT
		CSM800/810	$V_{CC} = 4.5V, V_O = 0.4V, I_F = 16mA, T_A = 25^\circ C$		17		%
		CSM801/811		15		22	%

Current transfer ratio	$h_{f(CTR)}$	CSM800/810	$I_F=16mA, V_O=0.4V, V_{CC}=4.5V$	9			%
		CSM801/811		9			%
Logic low output voltage	$V_{OL}$		$V_{CC}=4.5V, I_F=16mA, I_O=1.44mA$		0.3	0.4	V
Logic high output current	$I_{OH}$		$I_F=0, V_O=V_{CC}=18V$		0.05	100	$\mu A$
Logic high supply current	$I_{CCH}$		$I_F=0, V_O=OPEN, V_{CC}=18V$		0.05	10	$\mu A$
Logic low supply current	$I_{CCL}$		$V_{CC}=18V, I_F=20mA$		30	200	$\mu A$
Input forward voltage	$V_F$		$I_F=20mA$		1.45	1.9	V
I/O insulation leakage current	$I_{IO}$		$R_H=45\%, T_A=25^\circ C, t=5s, V_{IO}=1500Vdc$			1.0	$\mu A$
Propagation delay to logic low o/p	tPHL		$R_L=8.2k\Omega, I_F=16mA, V_{CC}=5V$		0.5	2.0	$\mu s$
Propagation delay to logic high o/p	tPLH				1.2	6.0	$\mu s$

## Reliability and Approvals

Isocom Ltd supplies high reliability devices for applications requiring an operating temperature range of  $-55^\circ C$  to  $+125^\circ C$  (e.g. military applications).

Devices supplied have completed rigorous testing, and various high reliability test options are offered.

As manufacturer of high reliability optocouplers Isocom Ltd's manufacturing plant at North East England, has site approval to BS9000 (registered number 1294/M) and CECC20000 (registered number M/1084/CECC/UK) issued by the British Standards Institution. Together with CECC, BS9000 is a preferred standard for use in European military projects. Consequently, Isocom Ltd's approved devices are listed in the CECC "MUAHAG" preferred products list.

The BS9000 approval is also recognised as meeting the equivalent criteria to those required by BS5750/ISO9000/EN29000.

The Company's customers can be assured of our commitment to stringent quality, reliability and inspection standards, as demonstrated by our existing approvals. Other customer specific options can also be offered.

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