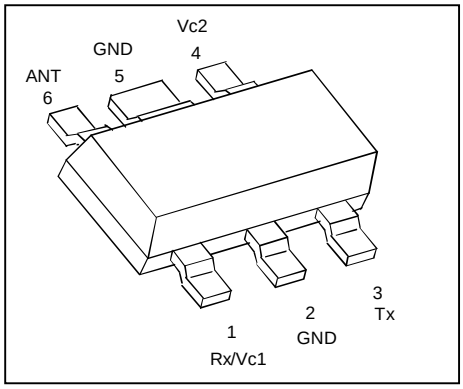
GaAs MMIC

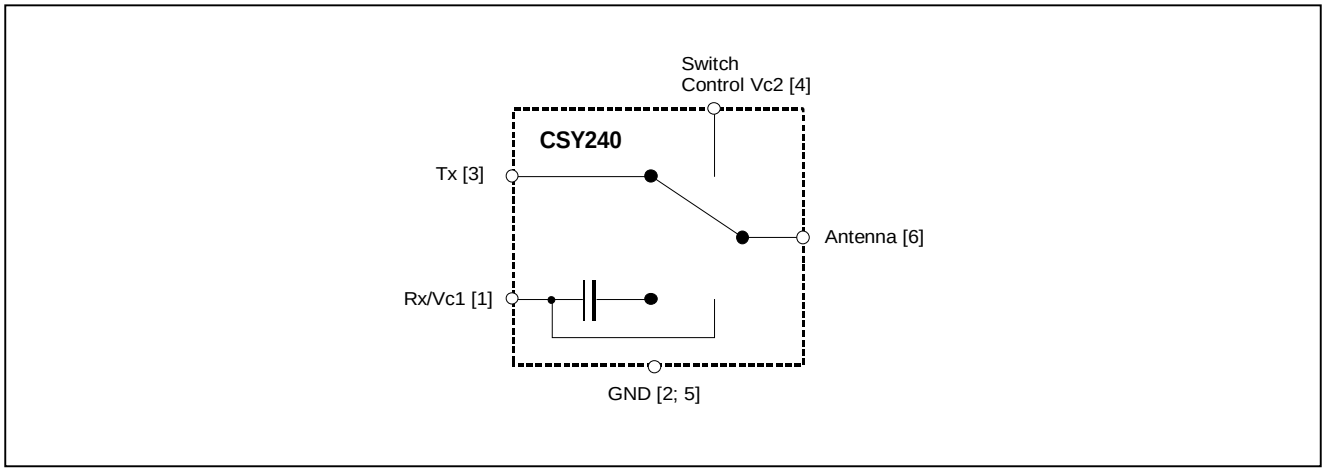
Preliminary Data



- TX/RX- and diversity switch for mobile communications and 2.45GHz WLAN applications
- Low insertion loss
- High TX/RX isolation
- Frequency range 0.5 - 3.0 GHz
- High input power capability
- Very low rise / fall time
- Miniature package MW6 based on SOT23

ESD: **E**lectro**s**tatic **d**ischarge sensitive device, observe handling precautions!

Type	Marking	Ordering code (taped)	Package 1)
CSY 240	S1	Q62702-S2000	MW-6



Maximum ratings

Characteristics	Symbol		Unit
Control voltage range	V_{c1} / V_{c2}	0....-7	V
Channel temperature	T_{Ch}	150	°C
Storage temperature range	T_{stg}	-55...+150	°C
Total power dissipation (TS ≤ tbd°C) 2)	P_{tot}	tbd.	mW

Thermal resistance

Characteristics	Symbol		Unit
Channel-soldering point (GND)	R_{thChS}	≤ tbd.	K/W
Channel-ambient 3)	R_{thChA}	< tbd.	K/W

1) Dimensions see page 5.
2) Please care for sufficient heat dissipation on the pcb!
3) Package mounted on alumina 15 mm x 16.7 mm x 0.7 mm

Electrical characteristics

T_A = 25°C RS = RL = 50Ω P_{IN} = 10dBm unless otherwise specified

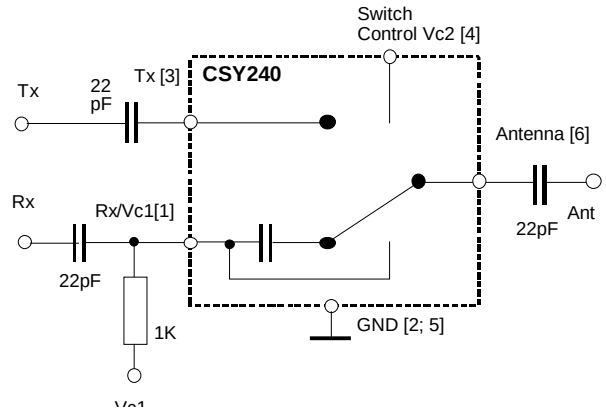
Characteristics	Symbol	min	typ	max	Unit
Control current Vc = -5V	I_c	-	20	-	µA
Insertion Loss Tx - Path Vc1 = 0V; Vc2 = -5V; f = 900MHz f = 1.8GHz f = 2.5GHz	IL_{Tx}	- - -	0.3 0.5 0.7	- - -	dB
Insertion Loss Rx - Path Vc1 = -5V; Vc2 = 0V; f = 900MHz f = 1.8GHz f = 2.5GHz	IL_{Rx}	- - -	0.35 0.55 0.8	- - -	dB
Input- / Output return loss Tx - Path Vc1 = 0V; Vc2 = -5V; f = 900MHz f = 1.8GHz f = 2.5GHz	RL_{Tx}	- - -	20 20 15	- - -	dB
Input- / Output return loss Rx - Path Vc1 = -5V; Vc2 = 0V; f = 900MHz f = 1.8GHz f = 2.5GHz	RL_{Rx}	- - -	16 17 14	- - -	dB
Tx- /Rx - Isolation 1) Vc1 = 0V; Vc2 = -5V; f = 900MHz f = 1.8GHz f = 2.5GHz	ISO_{TxRx}	- - -	28 22 19	- - -	dB

Characteristics	Symbol	min	typ	max	Unit
Ant / Rx - Isolation[1)] Vc1 = 0V; Vc2 = -5V; f = 900MHz f = 1.8GHz f = 2.5GHz	ISO_{AntRx}	 - - -	 28 22 19	 - - -	dB
Tx- / Ant- Isolation[1)] Vc1 = -5V; Vc2 = 0V; f = 900MHz f = 1.8GHz f = 2.5GHz	ISO_{TxAnt}	 - - -	 29 24 19	 - - -	dB
Output power at 1dB gain compression (Tx- Path) Vc1 = 0V; Vc2 = -5V; f = 900MHz	P_{-1dB}	-	30	-	dBm

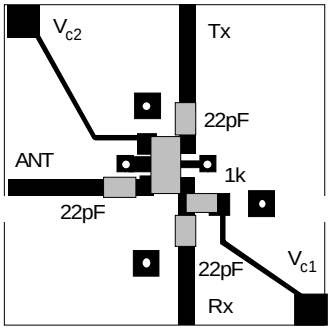
1) See page 4 for definition

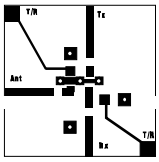
Characteristics	Symbol	min	typ	max	Unit
Input Power at 1dB gain compression (Rx - Path) Vc1 = -5V; Vc2 = 0V f = 900MHz	P_{-1dBin}	-	31.5	-	dBm
Third order output intercept point (Tx - path) two-tone intermodulation test Vc1 = 0V; Vc2 = -5V	IP_3	 -	tbd.	 -	dBm
Third order input intercept point (Rx - path) two-tone intermodulation test Vc1 = -5V; Vc2 = 0V	IP_{3in}	 -	tbd.	 -	dBm

Test and application circuit:



Layout of application board:

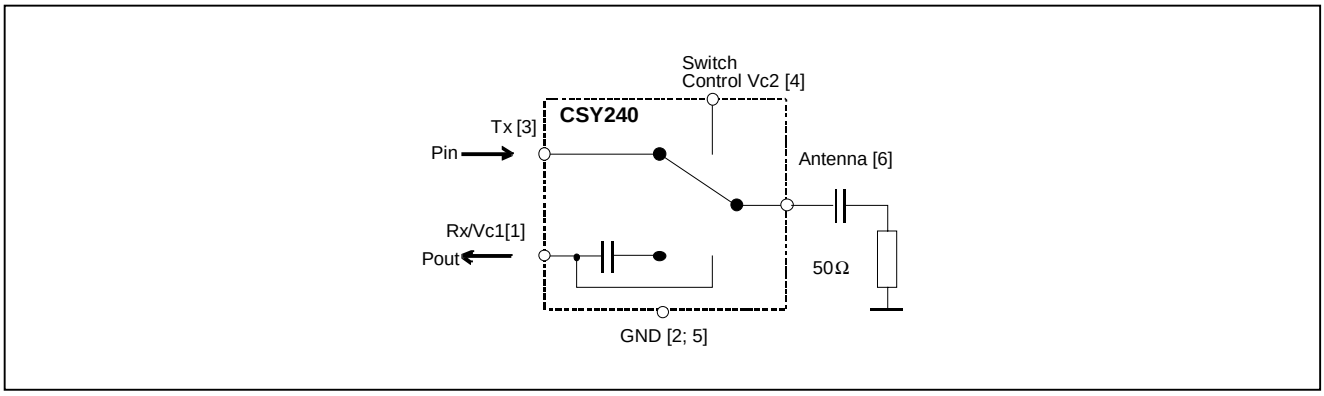




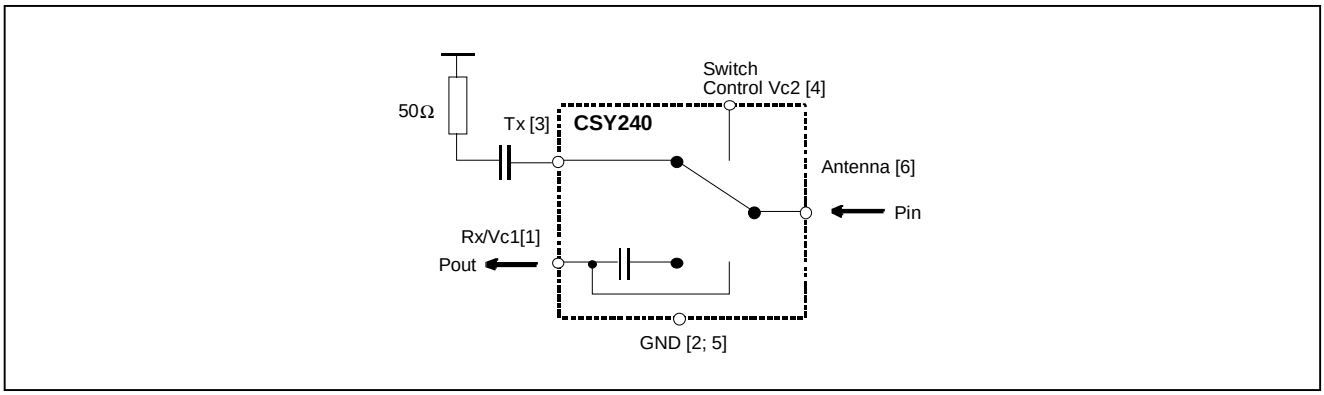
actual size

PCB - data: Glass fiber teflon board (double sided) TACONIC TLX-9-0150-CH/CH
ε_r = 2.45 thickness = 0.4mm

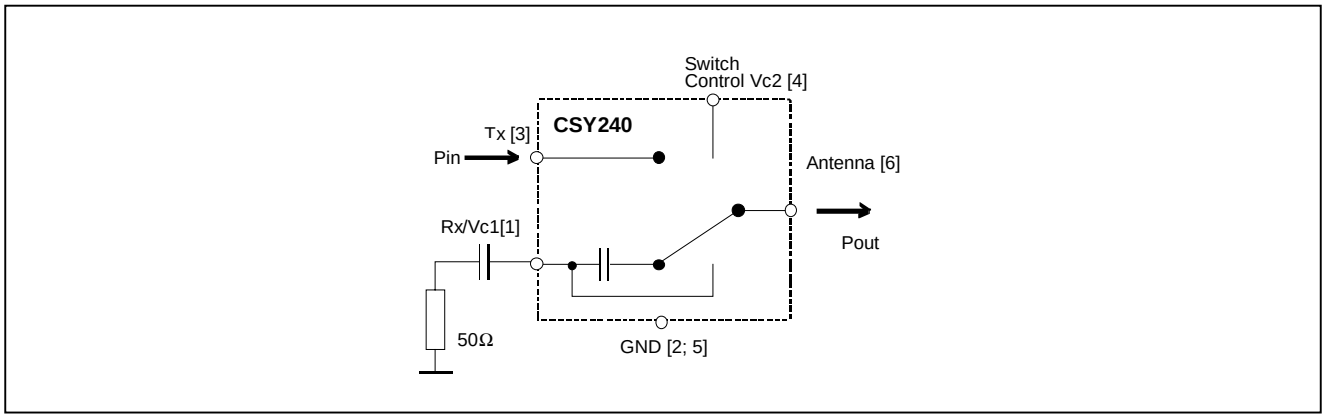
Test - conditions for isolation measurements:



Tx / Rx Isolation

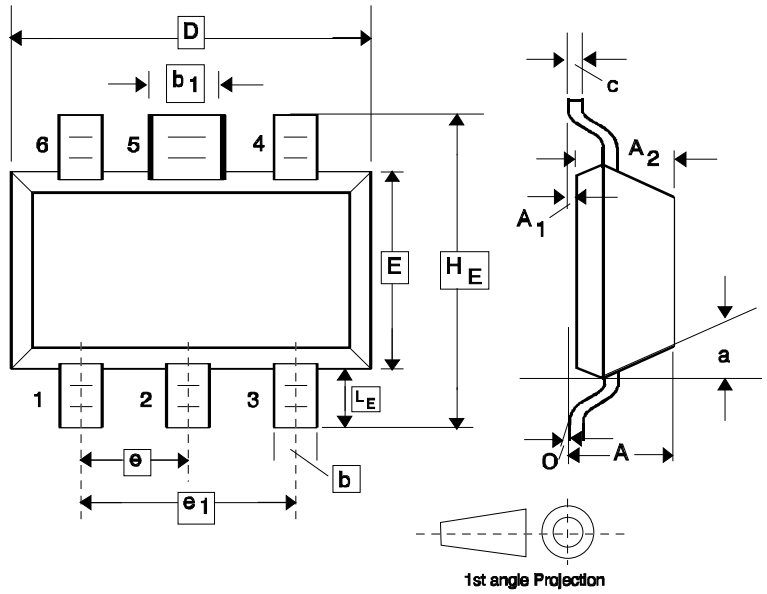


Ant / Rx Isolation



Tx / Ant Isolation

Semiconductor Device Outline MW-6



Dim.	min.	nom.	max.	Gradient	Remark
A			1.1		
A_1			0.1		
A_2			1.0		
b		0.3			
b_1		0.6			
c	0.08		0.15		
D	2.8		3.0		
E	1.2		1.4		
|e|		0.95			
$\|e_1\|$		1.9			
H_E			2.6		
L_E			0.6		
a				max 10°	1
q				2°...30°	

1. Applicable on all case top sides

Published by Siemens AG, Bereich Halbleiter, Marketing-Kommunikation,
Balanstraße 73, D-81541 München.

As far as patents or other rights of third parties are concerned, liability is only assumed for components per se, not for applications, processes and circuits implemented within components or assemblies.

The information describes the type of component and shall not be considered as assured characteristics.

Terms of delivery and rights to change design reserved.

For questions on technology, delivery, and prices please contact the Offices of Semiconductor Group in Germany or the Siemens Companies and Representatives worldwide (see address list).

Due to technical requirements components may contain dangerous substances. For information on the type in question please contact your nearest Siemens Office, Semiconductor Group.

Siemens AG is an approved CECC manufacturer.