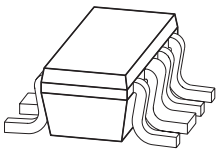
GaAs MMIC

CSY 210

Preliminary Data Sheet

- TX/RX- and diversity switch for mobile communications
- High input power capability (36 dBm $P_{-1\,dB}$ @ 3 V operation, 900 MHz)
- High linearity (57 dBm IP3 @ 900 MHz)
- Low insertion loss (0.6 dB @ 900 MHz)
- Positive control- and supply voltages (3 V)
- Miniature package SCT-598



SCT-598

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

Type	**Marking**	**Ordering Code** (taped)	**Package**[1)]
CSY 210	on request	on request	SCT-598

1) Dimensions see **Page 9**.

Maximum Ratings

Parameter	**Symbol**	**Value**	**Unit**
Control voltage range	V_A / V_B	t.b.d.	V
Channel temperature	T_{Ch}	150	°C
Storage temperature range	T_{stg}	– 55 … + 150	°C
Total power dissipation ($T_S \leq$ t.b.d. °C)[1)]	P_{tot}	t.b.d.	mW
Input Power	P_{IN}	t.b.d.	mW

1) Please care for sufficient heat dissipation on the pcb!

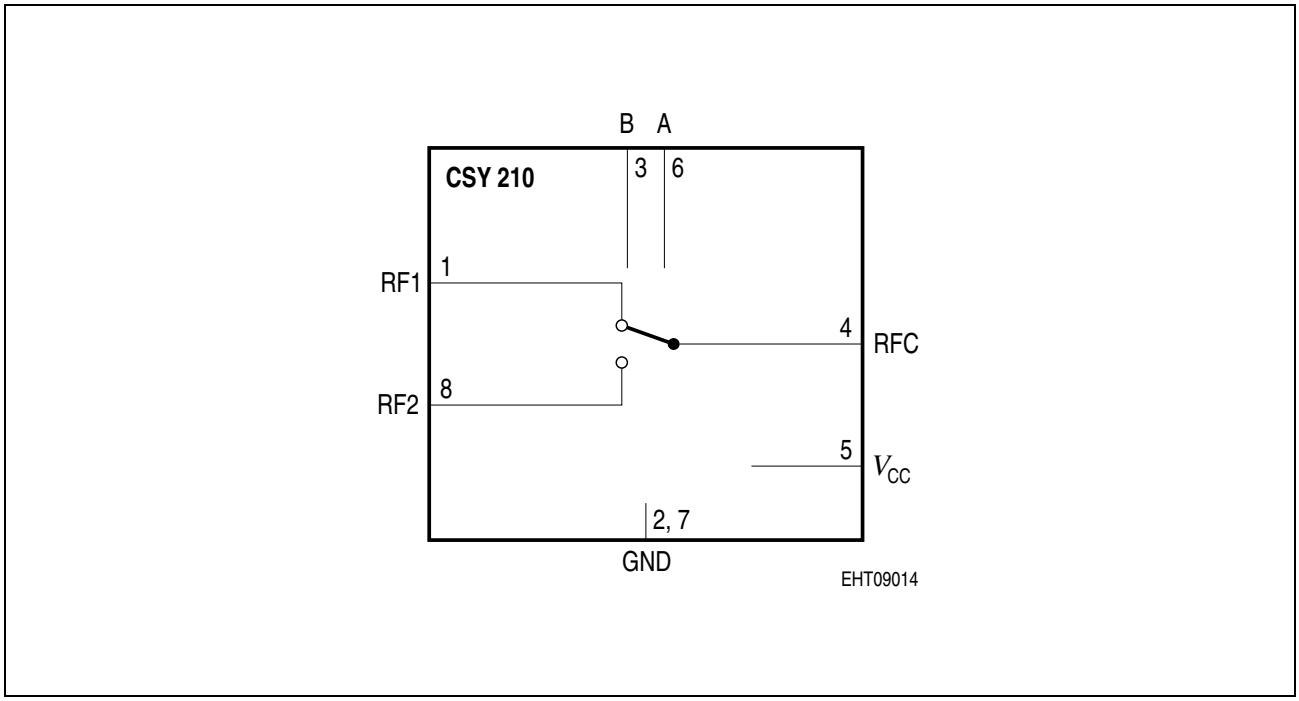


Figure 1 Functional Block Diagram

Electrical Characteristics

(T_A = 25 °C; P_{IN} = 10 dBm, unless otherwise stated)

Parameter	Symbol	Limit Values			Unit	Test Conditions
		min.	typ.	max.		
Insertion Loss RF1 - RFC f = 0.9 GHz f = 1.8 GHz	IL_{RF1}	 – –	 0.6 0.9	 – –	dB	V_A = 0 V, V_B = 3 V, V_{CC} = 3 V
Insertion Loss RF2 - RFC f = 0.9 GHz f = 1.8 GHz	IL_{RF2}	 – –	 0.6 0.9	 – –	dB	V_A = 3 V, V_B = 0 V, V_{CC} = 3 V
Isolation RF1 - RF2 f = 0.9 GHz f = 1.8 GHz	ISO	 – –	 17 12	 – –	dB	V_A = 0 V, V_B = 3 V, V_{CC} = 3 V
Input power at 1 dB gain compression (RF1 - RFC) Pulsed: T_{ON} = 577 µs, 12.5% duty cycle	$P_{-1\ dB}$	–	36	–	dBm	V_A = 0 V, V_B = 3 V, V_{CC} = 3 V f = 0.9 GHz
Input power at 1 dB gain compression (RF1 - RFC) 100% duty cycle	–	–	34.5	–	dBm	–
Third order intercept point Two tone input power = 18 dBm each f = 0.8 GHZ f = 1.9 GHz	IP3	 – –	 57 57	 – –	dBm	V_{CC} = 3 V, $V_{A,B}$ = 0 V (3 V)
VSWR (RF1 - RFC; RF2 - RFC) 0.5 GHz - 2 GHz	VSWR	–	1.2:1	–	–	–
Control current	–	–	–	100	µA	–
Supply current	–	–	–	100	µA	–

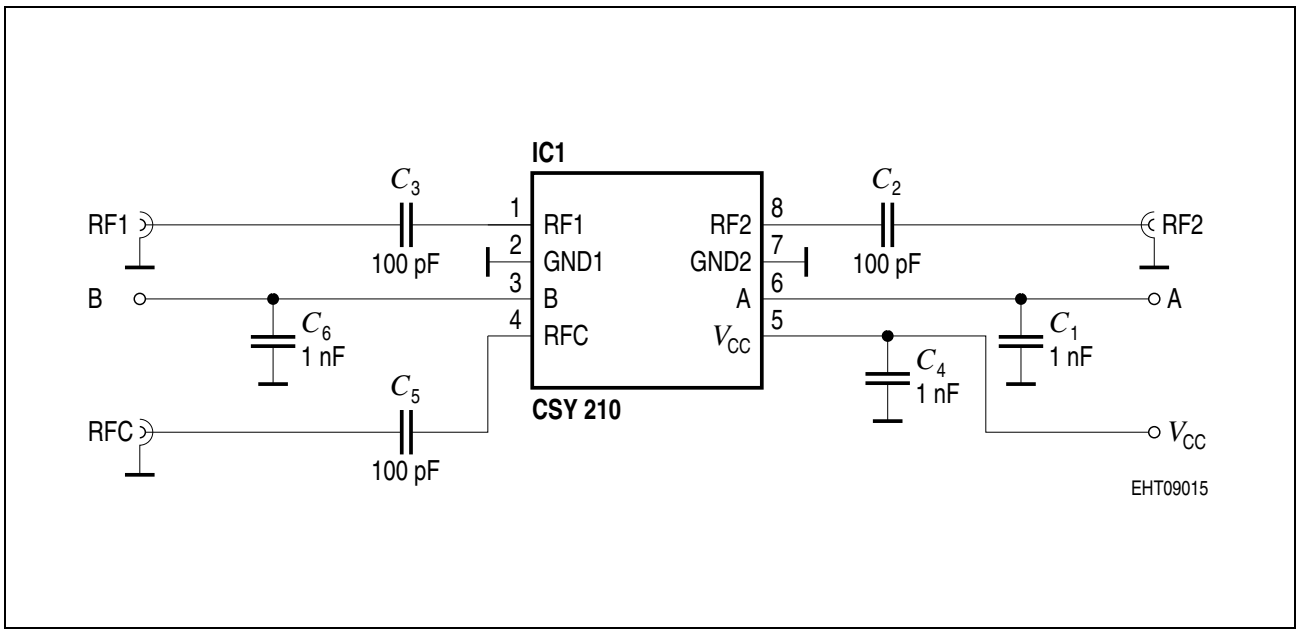


Figure 2 Evaluation Board Schematic

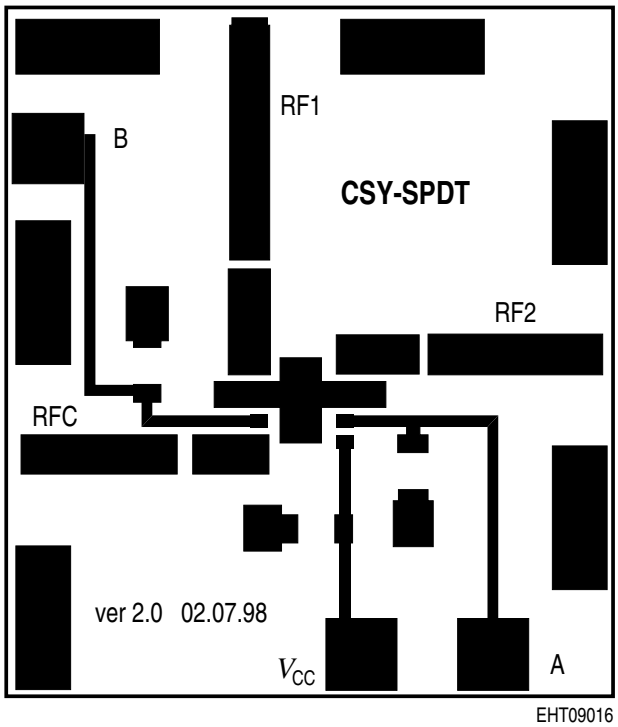


Figure 3 Evaluation Board (3:1 Scale)

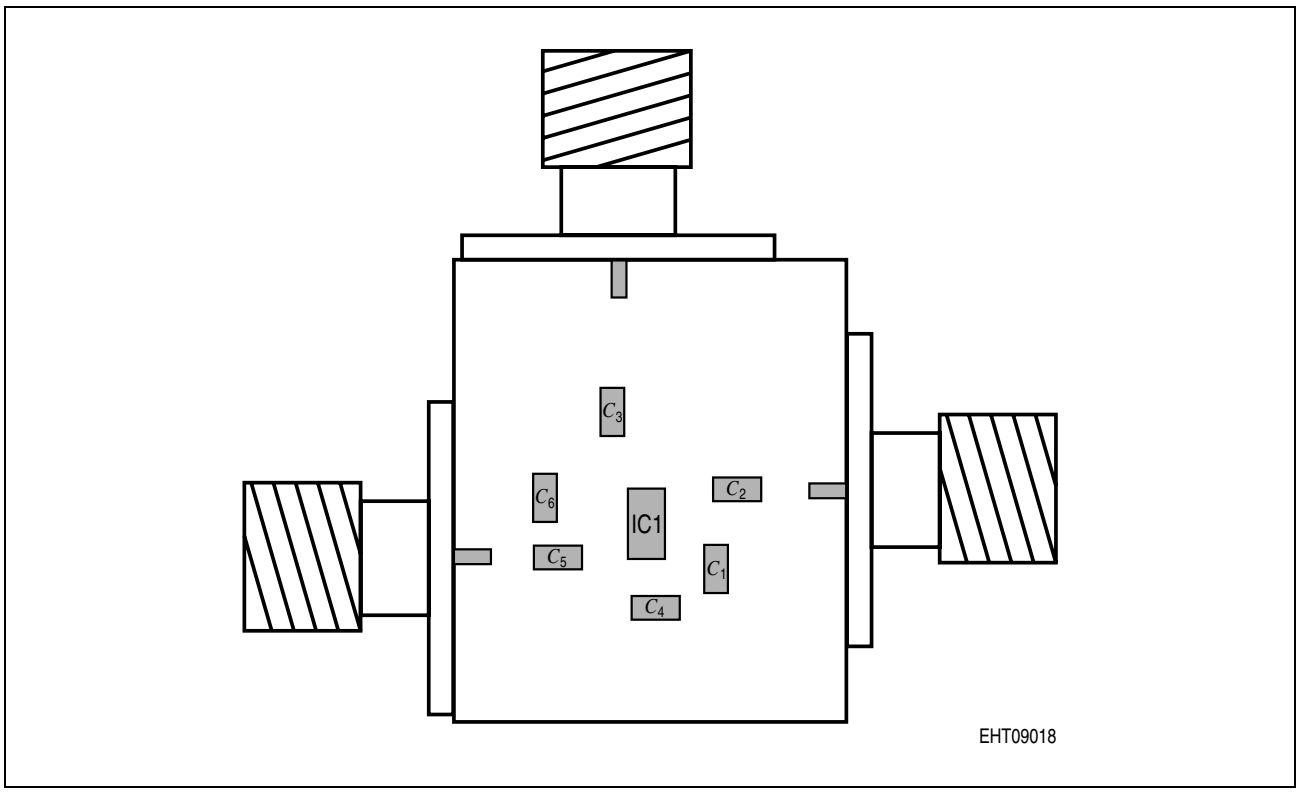


Figure 4 Board Material: TLX-9-0150 (TACONIC); ε_r = 2.4; h = 0.4 mm

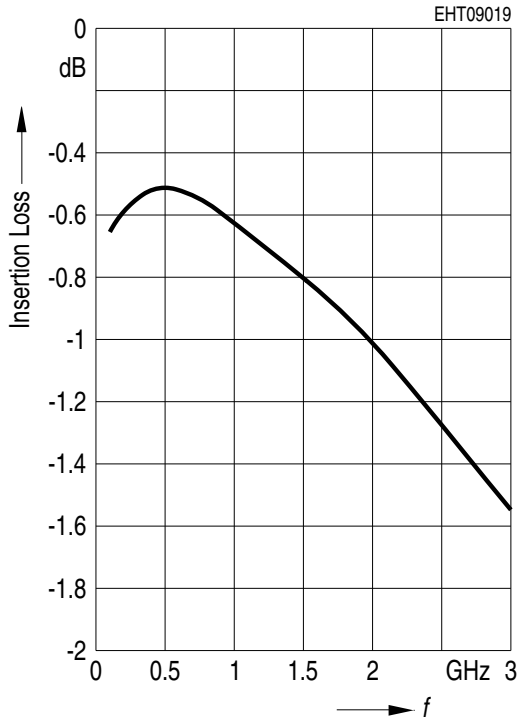
Evaluation Board Parts List

Part Type	Position	Description	Manufacturer	Part Number
Capacitor	C_2, C_3, C_5	100 pF 0603	Epcos	–
Capacitor	C_1, C_4, C_6	1 nF 0603	Epcos	–

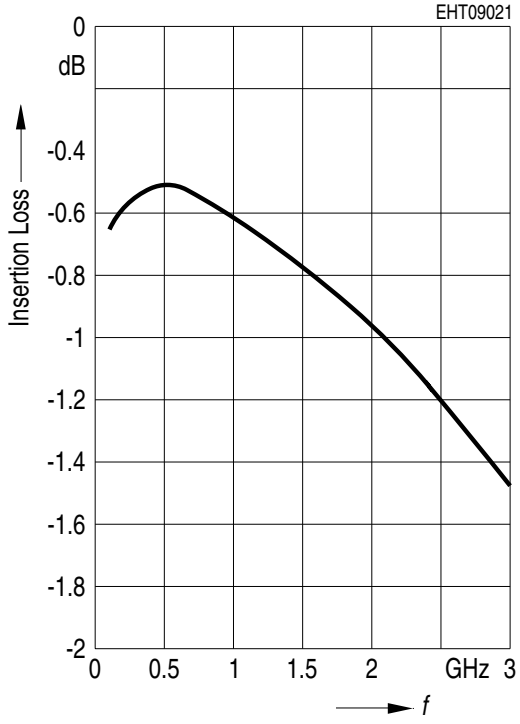
Measured Results

(all Ports connected to 50 Ω; P_{IN} = 10 dBm unless otherwise specified)

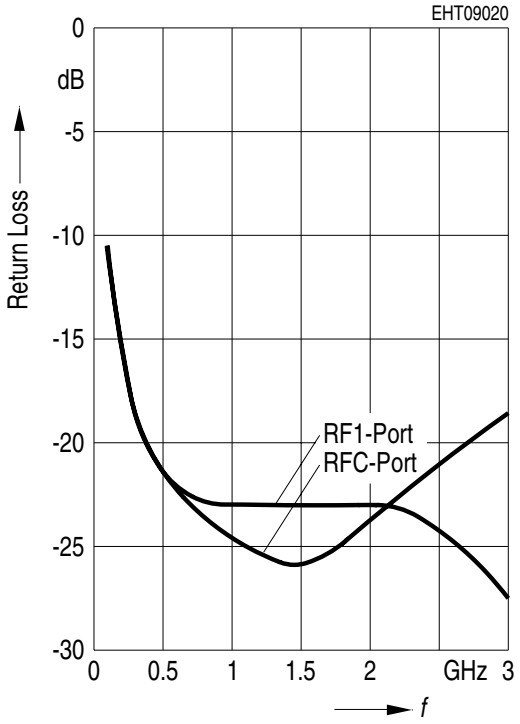
Insertion Loss (RFC, RF1 - Port @ A = 0 V; B = 3 V; V_{CC} = 3 V)



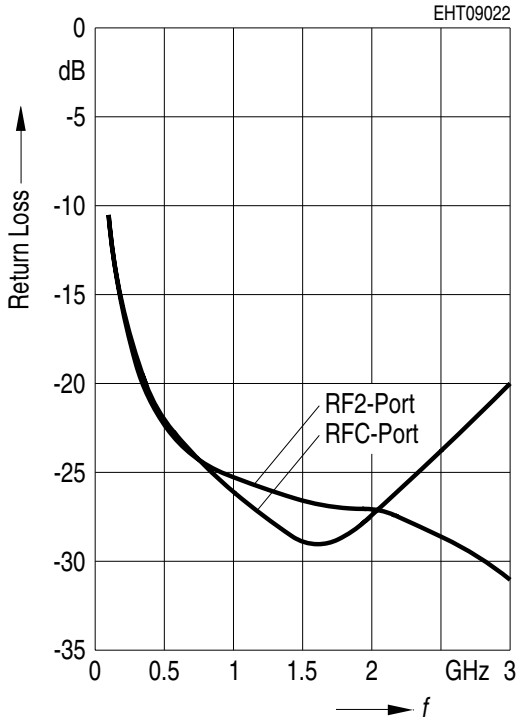
Insertion Loss (RFC, RF2 - Port @ A = 3 V; B = 0 V; V_{CC} = 3 V)



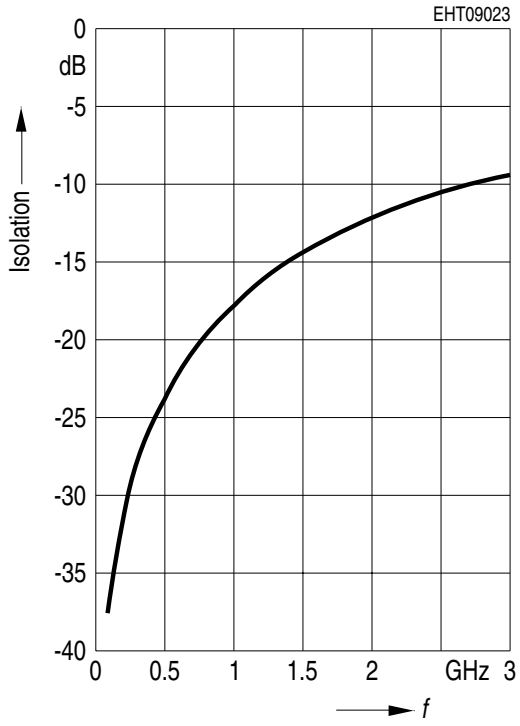
Return Loss (RFC, RF1 - Port @ A = 0 V; B = 3 V; V_{CC} = 3 V)



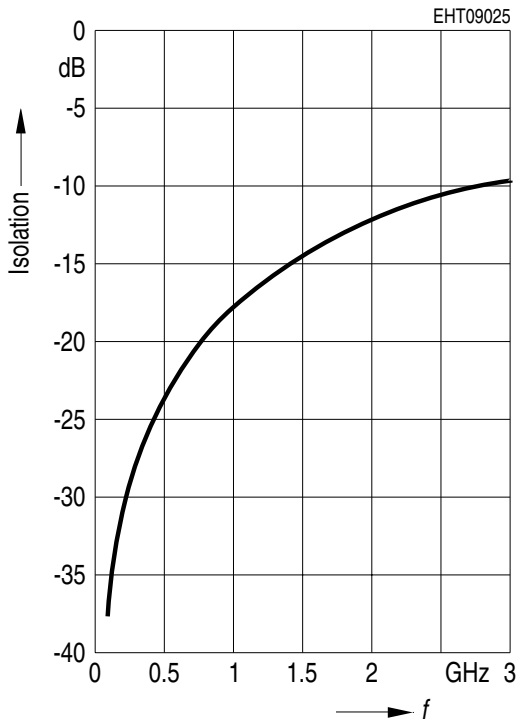
Return Loss (RFC, RF2 - Port @ A = 3 V; B = 0 V; V_{CC} = 3 V)



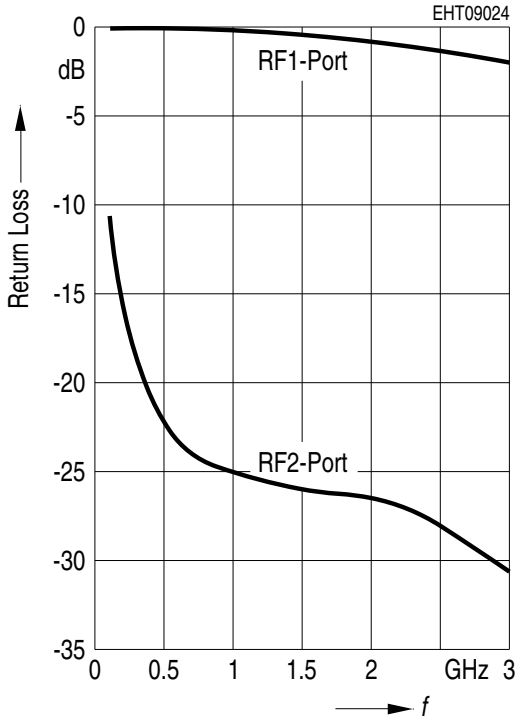
Isolation (RF1, RF2 - Port @
A = 3 V; B = 0 V; V_{CC} = 3 V)



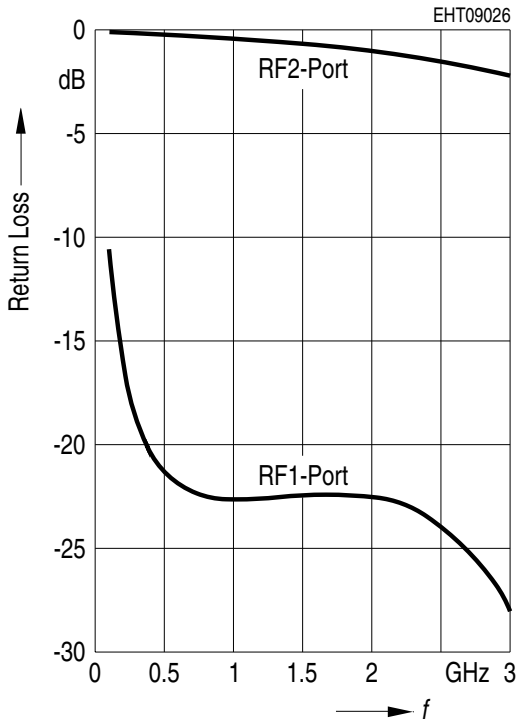
Isolation (RF1, RF2 - Port @
A = 0 V; B = 3 V; V_{CC} = 3 V)



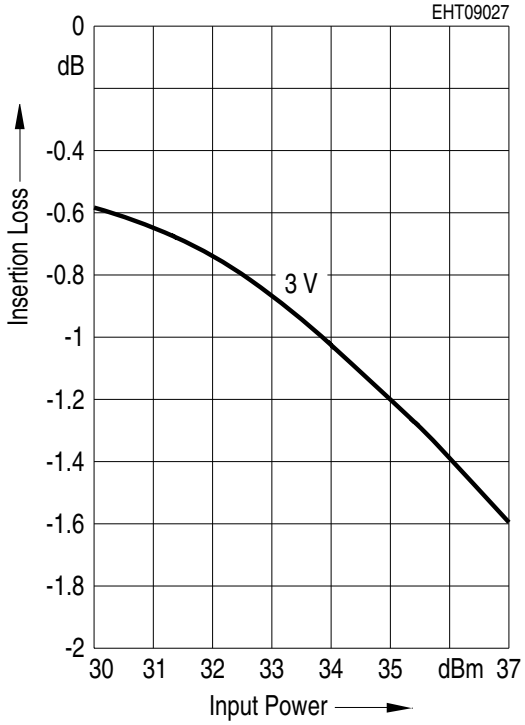
Return Loss (RF1, RF2 - Port @
A = 3 V; B = 0 V; V_{CC} = 3 V)



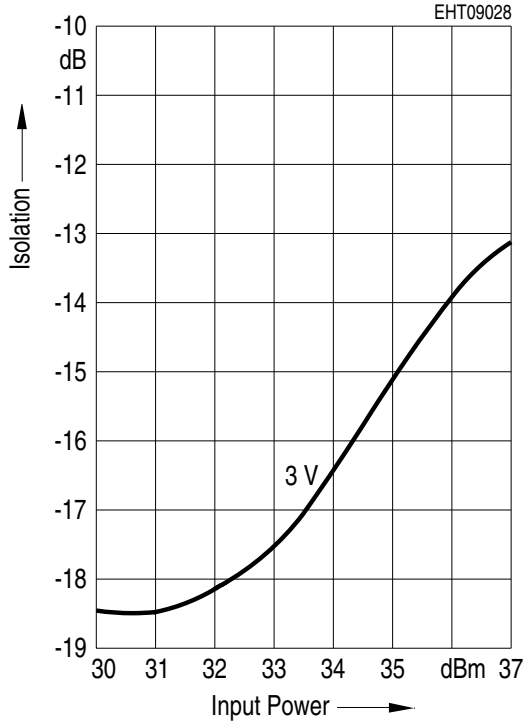
Return Loss (RF1, RF2 - Port @
A = 0 V; B = 3 V; V_{CC} = 3 V)



Insertion Loss vs. Input Power
(RF2 - RFC @ A = V_{CC} = 3 V; B= 0 V;
f = 900 MHz pulsed: T_{ON} = 577 µS;
12.5% duty cycle GSM-Signal)

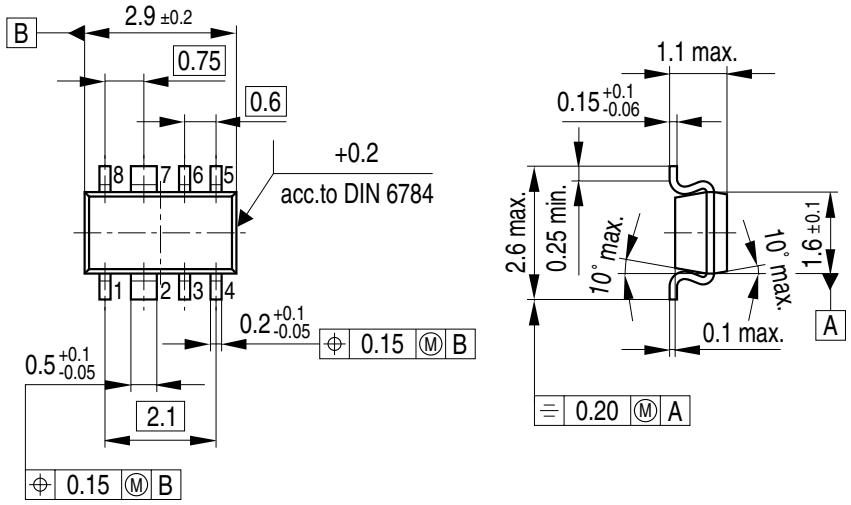


Isolation vs. Input Power
(RF2 - RF1 @ A = V_{CC} = 3 V; B = 0 V;
f = 900 MHz pulsed: T_{ON} = 577 µS;
12.5% duty cycle GSM-Signal)



Package Outlines

SCT-598
(Special Package)



Sorts of Packing
Package outlines for tubes, trays etc. are contained in our Data Book “Package Information”.

SMD = Surface Mounted Device

Dimensions in mm