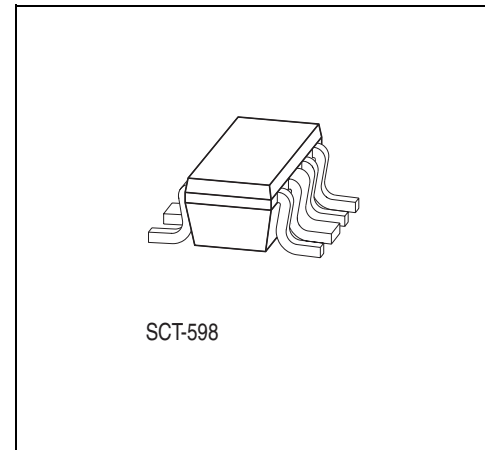


GaAs MMIC

Preliminary Data Sheet

CSY 210

- TX/RX- and diversity switch for mobile communications
- High input power capability (36 dBm $P_{-1\text{ dB}}$ @ 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



ESD: Electrostatic discharge 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!

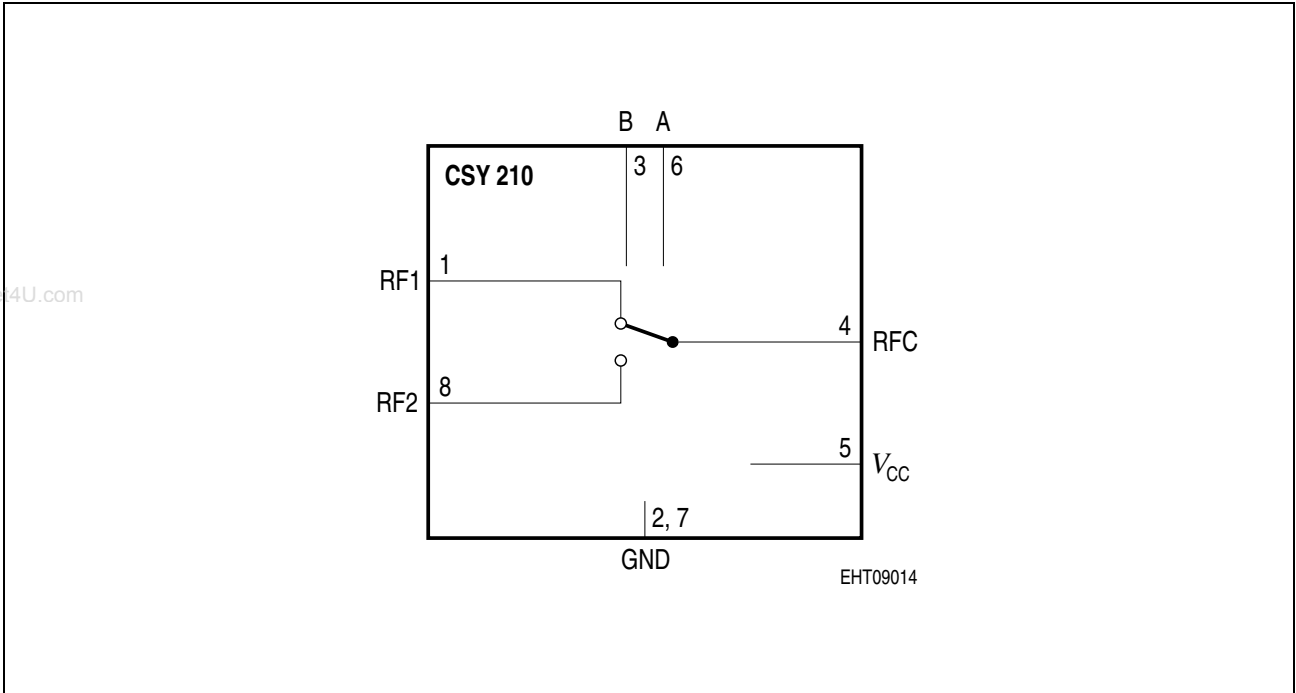


Figure 1 Functional Block Diagram

Electrical Characteristics
 $(T_A = 25\text{ }^\circ\text{C}; P_{IN} = 10\text{ dBm, unless otherwise stated})$

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

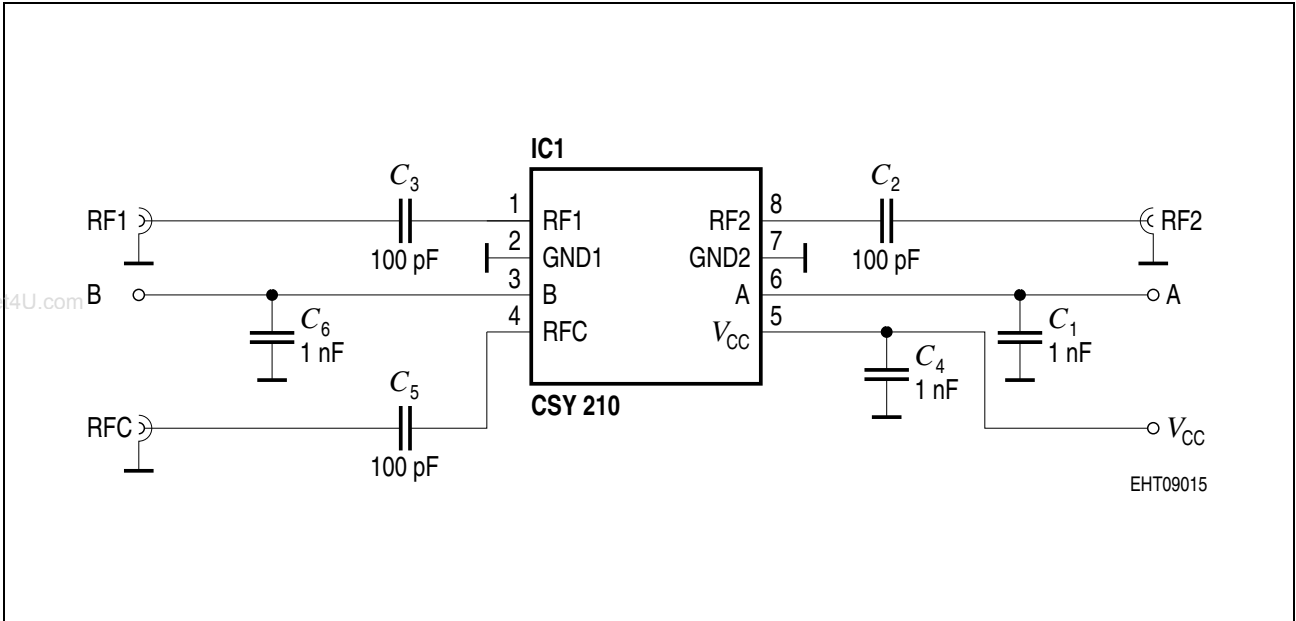


Figure 2 Evaluation Board Schematic

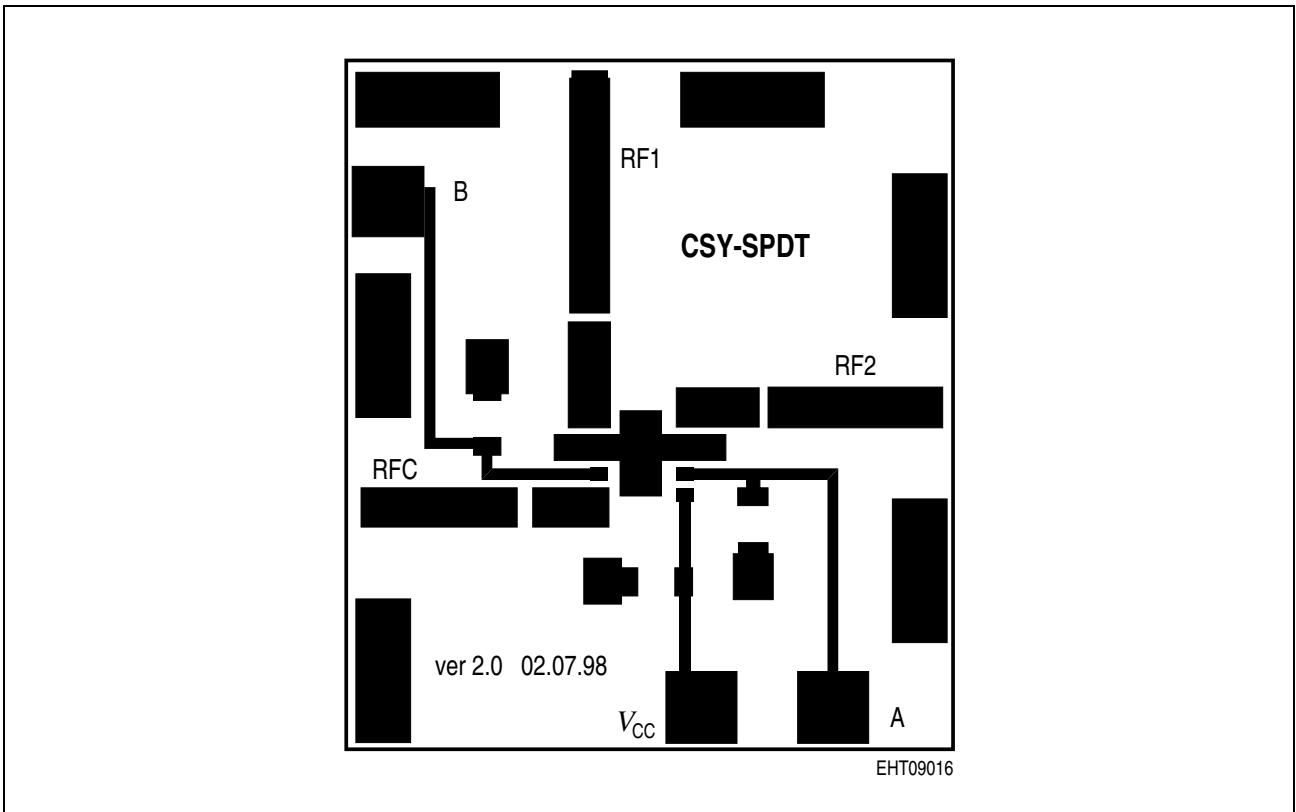


Figure 3 Evaluation Board (3:1 Scale)

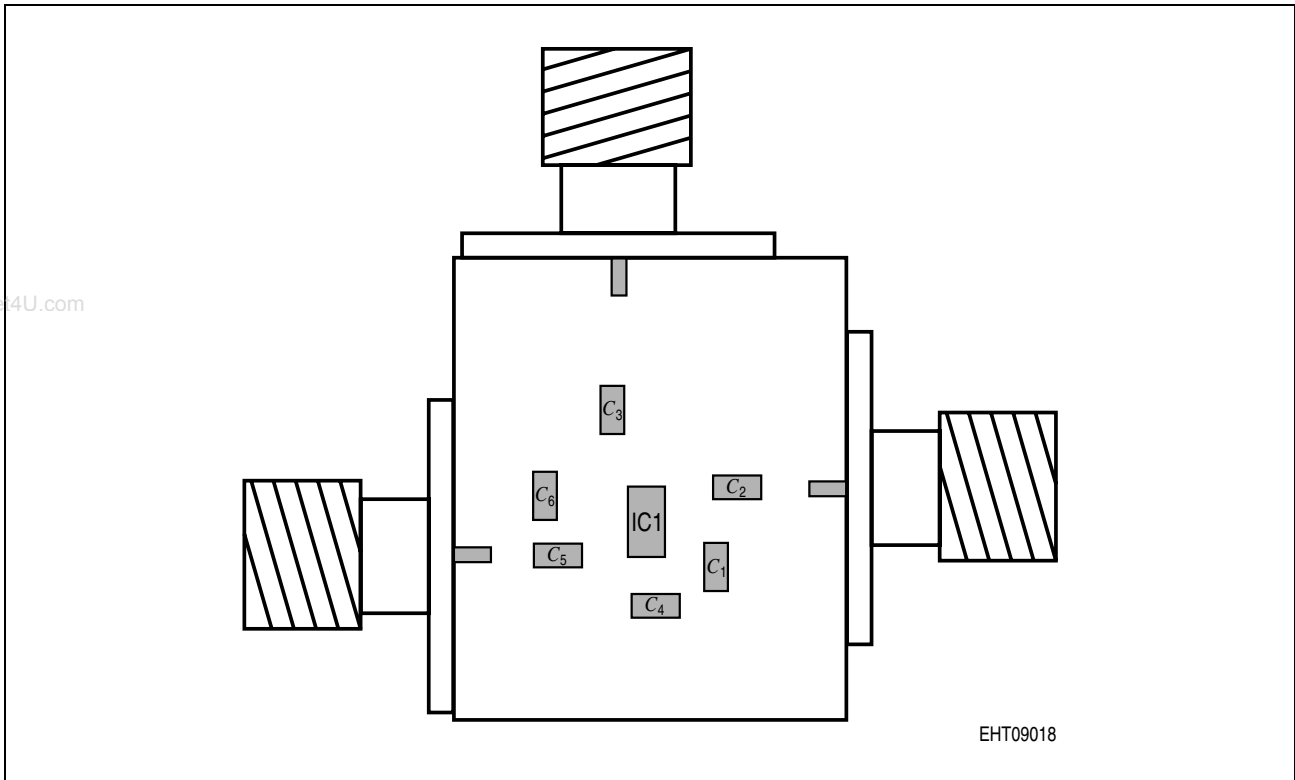


Figure 4 Board Material: TLX-9-0150 (TACONIC); $\epsilon_r = 2.4$; $h = 0.4$ mm

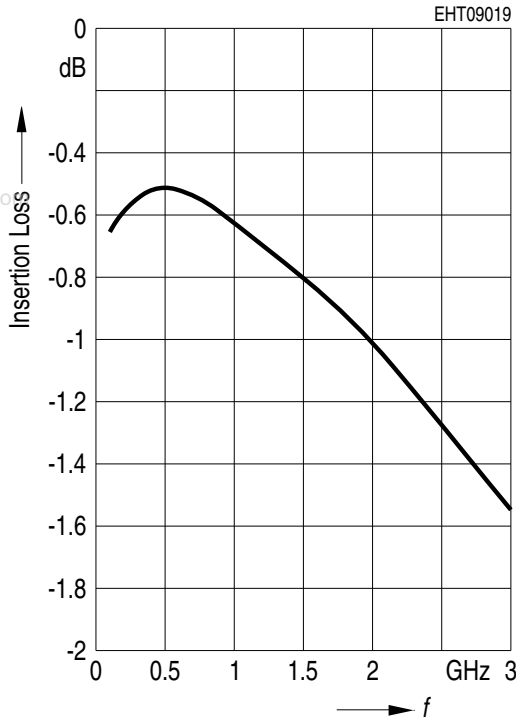
Evaluation Board Parts List

| 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 | – |

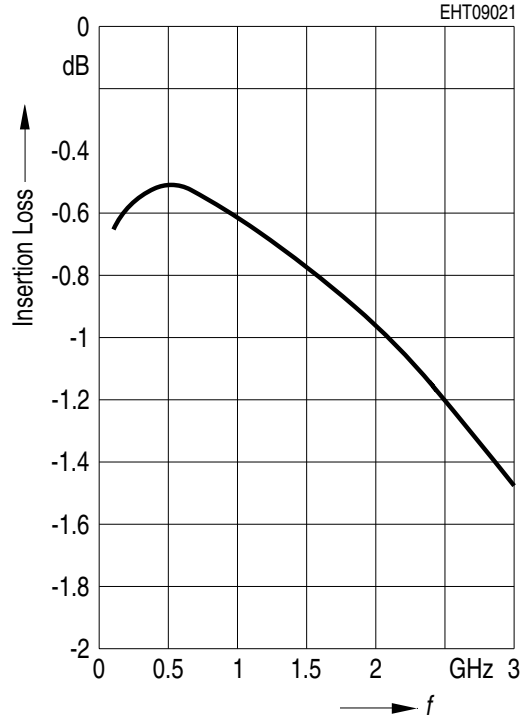
Measured Results

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

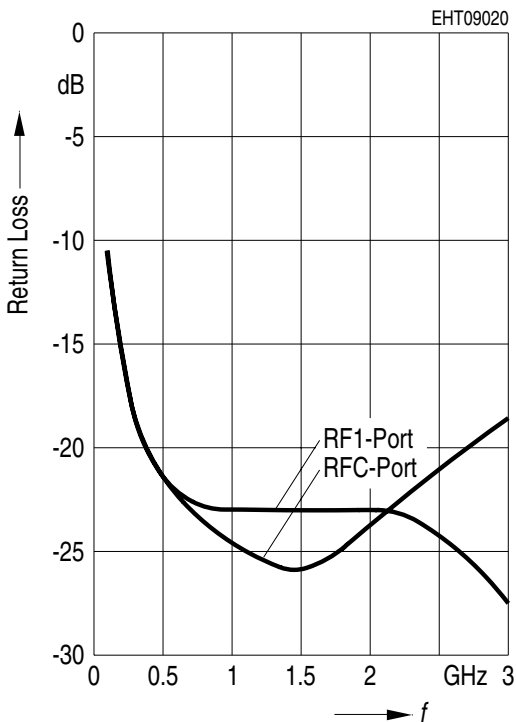
**Insertion Loss (RFC, RF1 - Port @
A = 0 V; B = 3 V; $V_{CC} = 3$ V)**



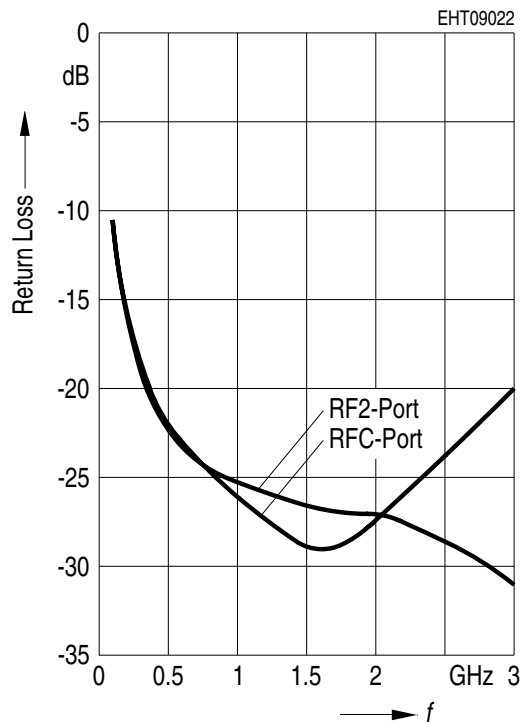
**Insertion Loss (RFC, RF2 - Port @
A = 3 V; B = 0 V; $V_{CC} = 3$ V)**



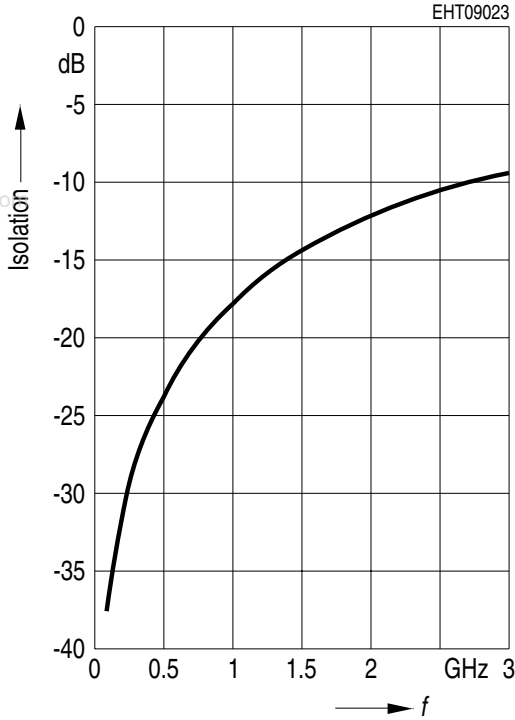
**Return Loss (RFC, RF1 - Port @
A = 0 V; B = 3 V; $V_{CC} = 3$ V)**



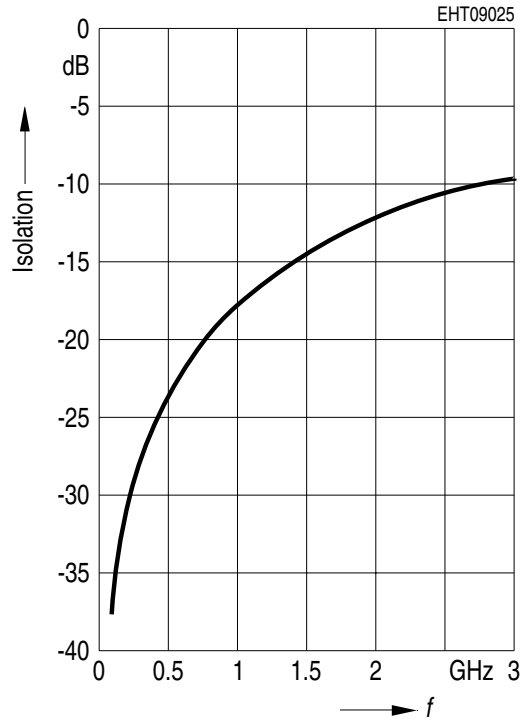
**Return Loss (RFC, RF2 - Port @
A = 3 V; B = 0 V; $V_{CC} = 3$ V)**



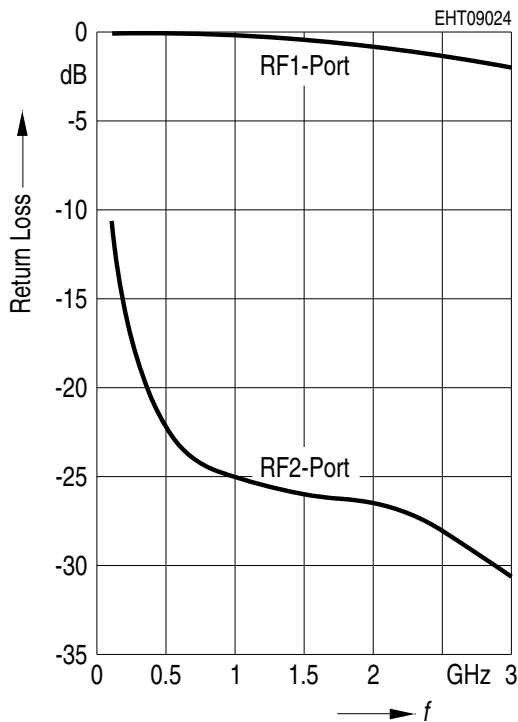
Isolation (RF1, RF2 - Port @
 $A = 3\text{ V}; B = 0\text{ V}; V_{CC} = 3\text{ V}$)



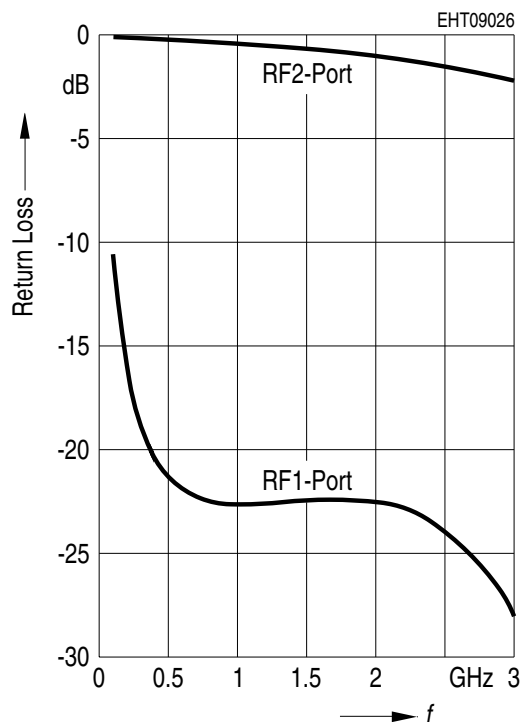
Isolation (RF1, RF2 - Port @
 $A = 0\text{ V}; B = 3\text{ V}; V_{CC} = 3\text{ V}$)



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

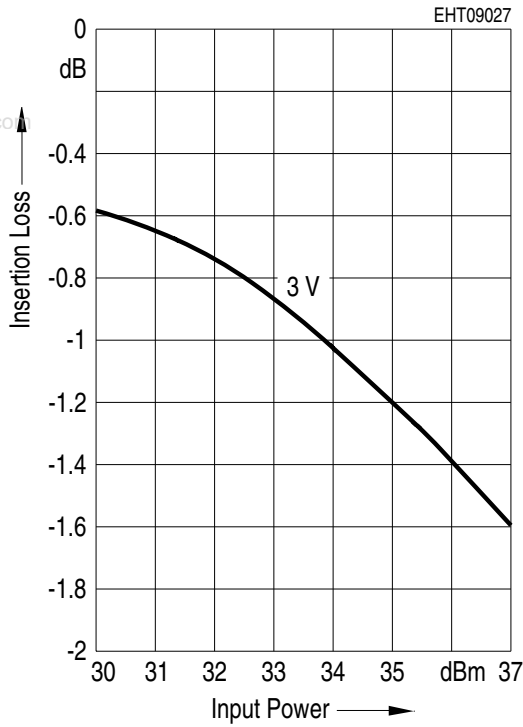


Return Loss (RF1, RF2 - Port @
 $A = 0\text{ V}; B = 3\text{ V}; V_{CC} = 3\text{ V}$)



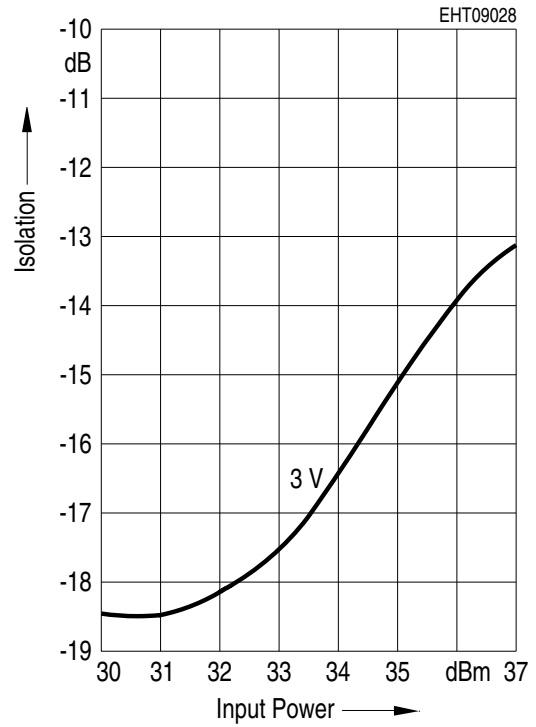
Insertion Loss vs. Input Power

(RF2 - RFC @ $A = V_{CC} = 3\text{ V}$; $B = 0\text{ V}$;
 $f = 900\text{ MHz}$ pulsed: $T_{ON} = 577\text{ }\mu\text{S}$;
 12.5% duty cycle GSM-Signal)



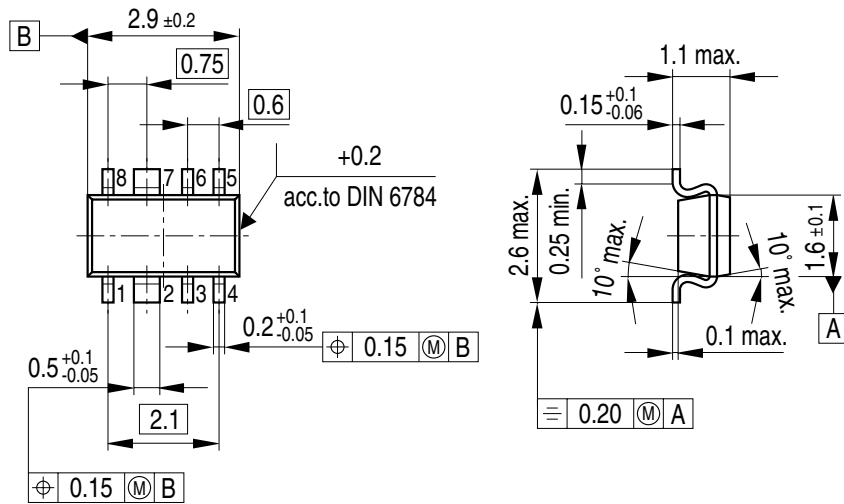
Isolation vs. Input Power

(RF2 - RF1 @ $A = V_{CC} = 3\text{ V}$; $B = 0\text{ V}$;
 $f = 900\text{ MHz}$ pulsed: $T_{ON} = 577\text{ }\mu\text{S}$;
 12.5% duty cycle GSM-Signal)



Package Outlines

SCT-598
(Special Package)



GPW09182

Sorts of Packing

Package outlines for tubes, trays etc. are contained in our Data Book "Package Information".

SMD = Surface Mounted Device

Dimensions in mm