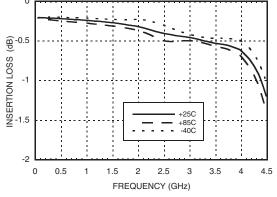


### HMC544 / 544E

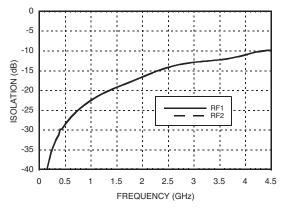
#### GaAs MMIC T/R SWITCH, DC - 4 GHz

ROHS EARTH FRIENDLY

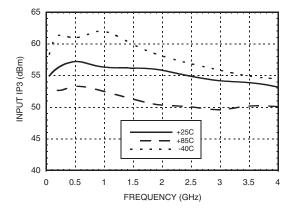
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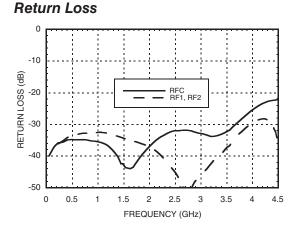


Isolation Between Ports RFC & RF1 / RF2

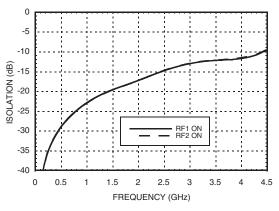


Input IP3 vs. Temperature, VctI = 0/+3V

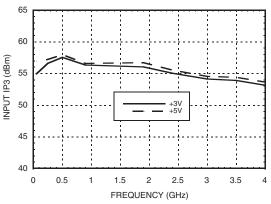




Isolation Between Ports RF1 & RF2







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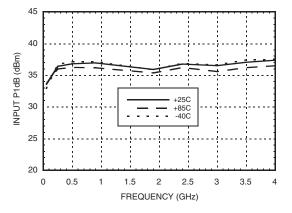
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#### GaAs MMIC T/R SWITCH, DC - 4.0 GHz

ROHS V

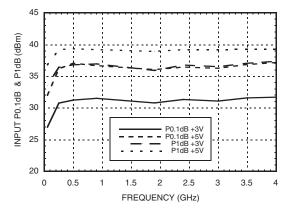
#### Input P1dB vs. Temperature, Vctl = 0/+3V



#### **Truth Table**

Control Input		Signal Path	
А	В	RFC to RF1	RFC to RF2
Low	High	On	Off
High	Low	Off	On

#### Compression vs. Vctl



#### **Control Voltages**

State	Bias Condition
Low	0 to 0.2 Vdc @ 1 µA Typical
High	+3 Vdc @ 0.5 μA Typical to +5 Vdc @ 2 μA Typical (±0.2 Vdc)

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10 - 302



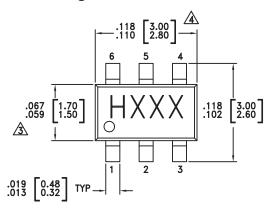
## RoHS√

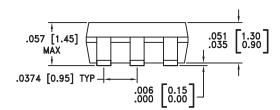
#### Absolute Maximum Ratings

RF Input Power (Vctl = 0/+5V)	+39 dBm
	+39 dbiii
Control Voltage Range (A & B)	-0.2 to +12 Vdc
Hot Switch Power Level (Vctl = 0/+5V)	+39 dBm
Channel Temperature	150 °C
Continuous Pdiss (T= 85 °C) (derate 7.14 mW/ °C above 85°C)	0.465 W
Thermal Resistance	140 °C/W
Storage Temperature	-65 to +150 °C
Operating Temperature	-40 to +85 °C
ESD Sensitivity (HBM)	Class 1A

DC blocks are required at ports RFC, RF1 and RF2.

#### **Outline Drawing**





NOTES:

1. LEADFRAME MATERIAL: COPPER ALLOY

0.22

.009 .003

.024 0.60 .012 0.30

DIMENSIONS ARE IN INCHES [MILLIMETERS]. 2.

LOT NUMBER

DIMENSION DOES NOT INCLUDE MOLDFLASH OF 0.15mm PER SIDE.

<u>3</u>

ХХХХ

HMC544 / 544E

DC - 4.0 GHz

GaAs MMIC T/R SWITCH,

ELECTROSTATIC SENSITIVE DEVICE **OBSERVE HANDLING PRECAUTIONS** 

A DIMENSION DOES NOT INCLUDE MOLDFLASH OF 0.25mm PER SIDE.

ALL GROUND LEADS MUST BE SOLDERED TO PCB RF GROUND. 5.

#### Package Information

Part Number	Package Body Material	Lead Finish	MSL Rating	Package Marking <sup>[3]</sup>
HMC544	Low Stress Injection Molded Plastic	Sn/Pb Solder	MSL1 <sup>[1]</sup>	H544 XXXX
HMC544E	RoHS-compliant Low Stress Injection Molded Plastic	100% matte Sn	MSL1 <sup>[2]</sup>	544E XXXX

[1] Max peak reflow temperature of 235 °C

[2] Max peak reflow temperature of 260 °C

[3] 4-Digit lot number XXXX

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# SWITCHES - SMT

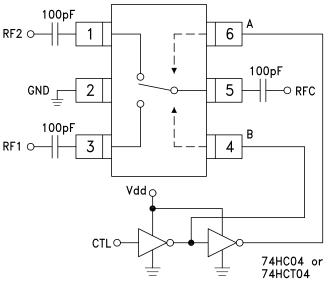


DC - 4.0 GHz

GaAs MMIC T/R SWITCH,

## ROHS V EARTH FRIENDLY

#### **Typical Application Circuit**



#### Notes:

- 1. Set logic gate Vdd = +3V to +5V and use HCT series logic to provide a TTL driver interface.
- 2. Control inputs A/B can be driven directly with CMOS logic (HC) with Vdd of +3V to +5V applied to the CMOS logic gates.
- 3. DC Blocking capacitors are required for each RF port as shown. Capacitor value determines lowest frequency of operation.

#### **Pin Descriptions**

Pin Number	Function	Description	Interface Schematic
1, 3, 5	RF2, RF1, RFC	These pins are DC coupled and matched to 50 Ohms. Blocking capacitors are required.	
2	GND	This pin must be connected to RF/DC ground.	
4	В	See truth and control voltage tables.	R
6	А	See truth and control voltage tables.	± c

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10

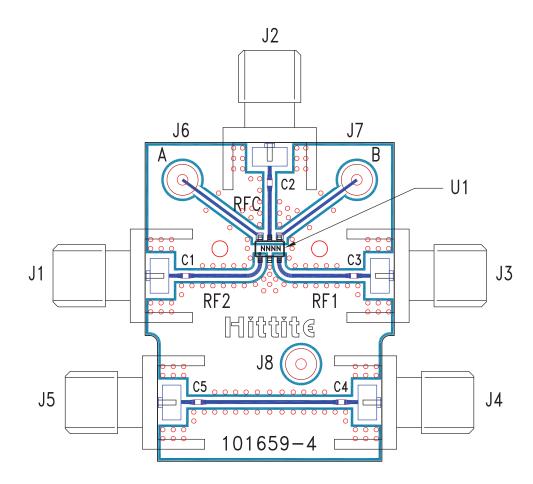
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#### GaAs MMIC T/R SWITCH, DC - 4.0 GHz



**Evaluation Circuit Board** 



#### List of Materials for Evaluation PCB 101675 [1]

Item	Description
J1 - J5	PCB Mount SMA RF Connector
J6 - J8	DC Pin
C1 - C5	330 pF capacitor, 0402 Pkg.
U1	HMC544 / HMC544E SPDT Switch
PCB [2]	101659 Evaluation PCB

Reference this number when ordering complete evaluation PCB
Circuit Board Material: Rogers 4350

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The circuit board used in the final application should be generated with proper RF circuit design techniques. Signal lines at the RF port should have 50 ohm impedance and the package ground leads should be connected directly to the ground plane similar to that shown above. The evaluation circuit board shown above is available from Hittite Microwave Corporation upon request.

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