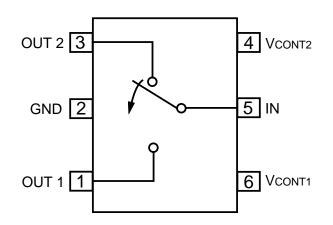
L, S BAND SPDT GaAs MMIC SWITCH

FEATURES

- WIDE FREQUENCY RANGE: 100 MHz to 2.5 GHz
- LOW INSERTION LOSS: 0.5 dB Typical at 2.0 GHz
- **HIGH P1dB:** +30 dBm typ. @ 2 GHz
- LOW CONTROL VOLTAGE: +3V or 0V
- SUPER SMALL SURFACE MOUNT PACKAGE: SOT-26
- AVAILABLE ON TAPE AND REEL

INTERNAL BLOCK DIAGRAM



DESCRIPTION

The UPG152TA is an L-Band Single Pole Double Throw (SPDT) GaAs MMIC switch developed for digital cellular, cordless, and PCS handset, WLAN, and other RF control applications. The device features low insertion loss, high P1dB, and low voltage operation. It is housed in a super small, low-cost SOT-26 package and is also available on tape-and-reel.

NEC's stringent quality assurance and test procedures ensure the highest reliability and performance.

ELECTRICAL CHARACTERISTICS (TA = 25°C, VCONT = 3V/0V)

PART NUMBER PACKAGE OUTLINE				UPG152TA T06		
SYMBOLS	PARAMETE	RS AND CONDITIONS	UNITS	MIN	TYP	MAX
IL	Insertion Loss	f = 0.1 – 2 GHz f = 2.0 – 2.5 GHz	dB dB		0.5 0.8	1.0
ISOL	Isolation	f = 0.1 – 2 GHz f = 2.0 – 2.5 GHz	dB dB	20	22 20	
RLIN	Input Return Loss	f = 0.1 - 2 GHz	dB	11		
RLOUT	Output Return Loss	f = 0.1 - 2 GHz	dB	11		
P1dB	Input Power at 1 dB C	ompression f = 0.1 - 2 GHz	dBm	27	30	
lip3	Input IP3 at f = 900 MHz, VCONT = +3 V f = 1900 MHz, VCONT = +3 V		dBm dBm		+48 +44	
tsw	Switching Speed	f = 0.1 - 2 GHz	ns		30	
ICONT	Control Current	f = 0.1 - 2 GHz, VCONT = 3V/0V, no RF signal	μΑ			5

ABSOLUTE MAXIMUM RATINGS¹ (TA = 25°C)

SYMBOLS	PARAMETERS	UNITS	RATINGS UPG152TA	
VCONT 1,2	VCONT 1,2 Control Voltage 1 and 2		-6.0 to +6.0	
			2.7≤ VCONT1-VCONT2 ≤6.0V	
Pin	Input Power	dBm	31	
Ртот	Total Power Dissipation	W	0.4	
Торт	Operating Case Temperature	°C	-50 to +90	
Тѕтс	Storage Temperature	°C	-65 to +150	

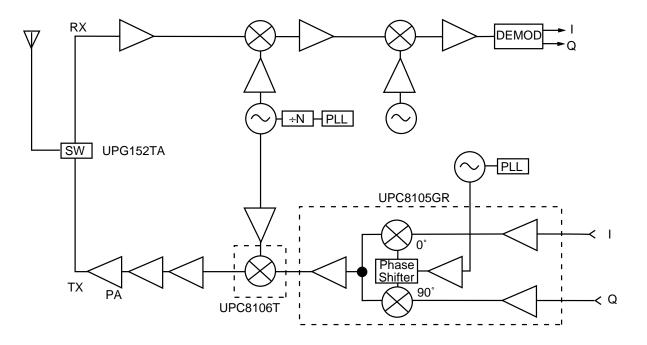
Note:

1. Operation in excess of any one of these parameters may result in permanent damage.

RECOMMENDED OPERATING CONDITIONS

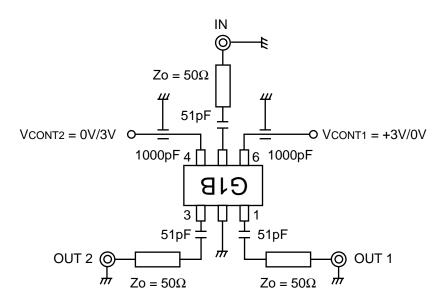
			UPG152TA		
SYMBOL	PARAMETER	UNITS	MIN	TYP	MAX
VCONT	Control Voltage (ON)	V	+2.7	+3.0	+5.3
VCONT	Control Voltage (OFF)	V	-0.2	0	+0.2
Pin	Input Power Level (VCONT = 3V/0V)	dBm		+27	+29

APPLICATION EXAMPLE (PCS Handset)



TEST CIRCUIT





SWITCH LOGIC TABLE

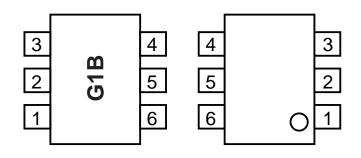
CONTROL	INPUTS (V)	CONDITION OF OUTPUT PORTS ¹		
VCONT1	VCONT ₂	OUT1	OUT ₂	
0	0	OFF	OFF	
0	+3	ON	OFF	
+3	0	OFF	ON	
+3	+3	OFF	OFF	

Note:

1. Impedance of the output port in the "OFF" state is reflective.

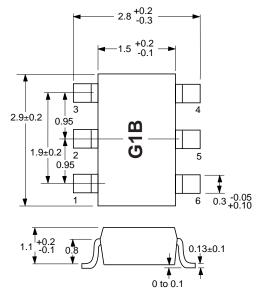
PIN CONNECTION DIAGRAM

PIN NO.	CONNECTION
1	OUT 1
2	GND
3	OUT 2
4	VCONT2
5	IN
6	VCONT1



OUTLINE DIMENSIONS (Units in mm)

UPG152TA PACKAGE OUTLINE T06



All dimensions are typical unless otherwise specified.

Life Support Applications

These NEC products are not intended for use in life support devices, appliances, or systems where the malfunction of these products can reasonably be expected to result in personal injury. The customers of CEL using or selling these products for use in such applications do so at their own risk and agree to fully indemnify CEL for all damages resulting from such improper use or sale.

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12/7/2001

ORDERING INFORMATION

PART NUMBER	QTY
UPG152TA-E3	3000/Reel