NEC

L-Band SPDT Switch | UPG157GV

FEATURES

- **LOW INSERTION LOSS:**
  L_{INS} = 0.4 dB TYP at V_{CONT} = +3.0 V/0 V, V_{DD} = +3.0 V, f = 1 GHz

  L_{INS} = 0.65 dB TYP at V_{CONT} = +3.0 V/0 V, V_{DD} = +3.0 V, f = 2 GHz
- **HIGH POWER SWITCHING:**
  Pin (1 dB) = +38 dBm TYP at V_{CONT} = +3.0 V/0 V, V_{DD} = +3.0 V, f = 1 GHz

DESCRIPTION

The UPG157GV is an L-band SPDT (Single Pole Double Throw) GaAs FET switch for digital cellular or cordless telephone application. The device can operate from 500 MHz to 2 GHz with low insertion loss. This device is housed in a very small 8 pin SSOP that is smaller than usual 8 pin SOP. It is easy to install and contribute to miniaturizing the system.

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

APPLICATION

- **L, S-BAND DIGITAL CELLULAR OR CORDLESS TELEPHONE**
- **PCS, WLAN AND WLL APPLICATIONS**

ELECTRICAL CHARACTERISTICS

(Unless otherwise specified, T_A = 25°C, V_{CONT1} = 3 V, V_{CONT2} = 0 V or V_{CONT1} = 0 V, V_{CONT2} = 3 V, Z_O = 50, V_{DD} = 3 V; off chip DC blocking capacitor value, 51 pF)

PART NUMBER PACKAGE OUTLINE			UPG157GV S08		
SYMBOLS	**PARAMETERS AND CONDITIONS**	**UNITS**	**MIN**	**TYP**	**MAX**
L_{INS}	Insertion Loss f = 0.5 to 1 GHz f = 2.0 GHz	dB		0.40 0.65	0.60 0.85
I_{SL}	Isolation f = 0.5 to 2 GHz	dB	20	25	
RL_{IN}	Input Return Loss f = 0.5 to 2 GHz	dB	11	15	
RL_{OUT}	Output Return Loss f = 0.5 to 2 GHz	dB	11	15	
$P_{IN(1\ dB)}$	Input Power 1 dB Compression Point[2], f = 1 GHz, V_{CONT} = 3 V/0 V	dBm	36	38	
$P_{IN(0.1\ dB)}$	Input Power 0.1 dB Compression Point[2], f = 1 GHz, V_{CONT} = 3 V/0 V	dBm		35[1]	
t_{sw}	Switching Speed	ns			
I_{CONT}	Control Current V_{CONT} = 3 V/0 V	μA		0.5	50

Note:
1. Reference characteristics.
2. P_{IN} (1dB) or P_{IN} (0.1 dB) measure the input power level when the insertion loss increases more than 1 dB or 0.1 dB of linear range. All other characteristics are measured in linear range.

ABSOLUTE MAXIMUM RATINGS[1] (T_A = 25°C)

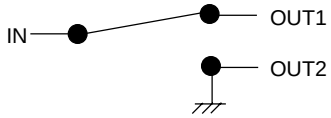
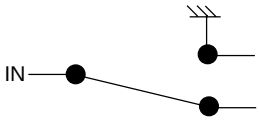
SYMBOLS	PARAMETERS	UNITS	RATINGS
$V_{CONT1, 2}$	Control Voltage 1, 2 [2]	V	-6 to +6
V_{DD}	Supply Voltage	V	V_{CONT}(H)
P_{IN}	Input Power (V_{CONT} = +3 V)	dBm	+38.5
P_T	Total Power Dissipation	W	0.7
T_A	Operating Temperature	°C	-50 to +90
T_{STG}	Storage Temperature	°C	-65 to +150

Notes:
1. Operation in excess of any one of these parameters may result in permanent damage.
2. Condition 2.5 | V_{CONT1} V_{CONT2} | 6.0 V

RECOMMENDED OPERATING CONDITIONS (T_A = 25°C)

SYMBOL	PARAMETER	UNITS	UPG157GV		
			MIN	TYP	MAX
V_{CONT}	Control Voltage (High)	V	+2.5	+3.0	+5.3
V_{CONT}	Control Voltage (Low)	V	-0.2	0	+0.2
V_{DD}	Supply Voltage	V		V_{CONT}(H)	

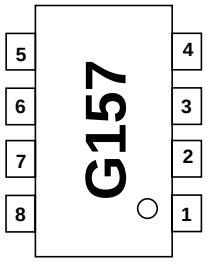
TRUTH TABLE OF SWITCHING BY CONDITION OF CONTROL VOLTAGE

		V_{CONT1}	
		$V_{CONT(H)}$	$V_{CONT(L)}$
V_{CONT2}	$V_{CONT(H)}$		
	$V_{CONT(L)}$		

PIN CONNECTION DIAGRAM

PIN NO.	CONNECTION
1	V_{CONT1}
2	IN
3	V_{DD}
4	V_{CONT2}
5	OUT1
6	GND
7	GND
8	OUT2

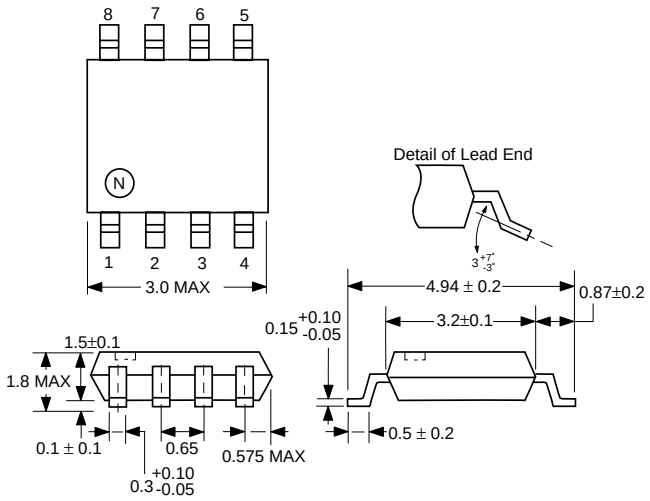
(Top View)



UPG157GV

OUTLINE DIMENSIONS (Units in mm)

PACKAGE OUTLINE S08



Note:
All dimensions are typical unless otherwise specified.

ORDERING INFORMATION

PART NUMBER	QUANTITY
UPG157GV-E1	2 kpcs/Reel

Note:
8 pin plastic SSOP (175 mil)