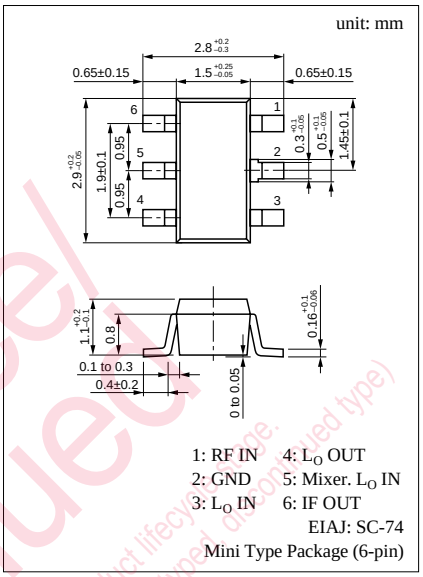
GN02022B

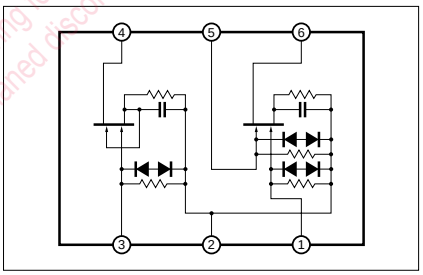
GaAs IC (with built-in ferroelectric)

Mixer with local amplifier for cellular phone



Marking Symbol: KD

Circuit-Function Block Diagram



■ Features

- High conversion gain mixer
- Low consumption current

■ Absolute Maximum Ratings (Ta = 25°C)

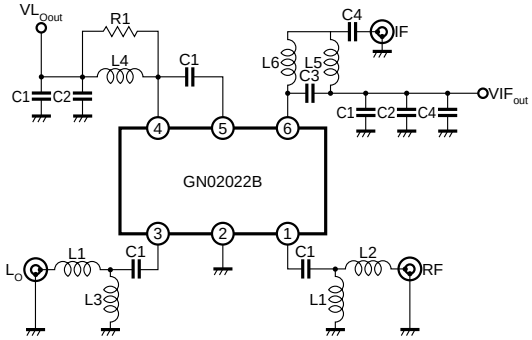
Parameter	Symbol	Ratings	Unit
RF section	V_{in}	−3	V
	I_{in}	1	mA
	P_{in}	10	dBm
L_O input section	V_{in}	−3	V
	I_{in}	1	mA
	P_{in}	10	dBm
L_O output section	V_{out}	5	V
	I_{out}	10	mA
Mix · L_O section	V_{in}	−3	V
	I_{in}	1	mA
IF section	V_{out}	5	V
	I_{out}	10	mA
Overall	P_T	0.1	W
	T_{ch}	150	°C
	T_{stg}	−55 to +150	°C

■ Electrical Characteristics (Ta = 25 ± 3°C)

Parameter	Symbol	Conditions	min	typ	max	Unit
Mixer current	IMix	VIF_{out} = 3V	2	5.2	7.6	mA
Local amplifier current	IL_O	VL_{Oout} = 3V	0.8	2	3.3	mA
Conversion gain 1	CG_1 *1, 2, 3, 4	VL_{Oout} = VIF_{out} = 3V f_{RF} = 820MHz, f_{IF} = 130MHz	11	14		dB
Output third harmonics mutual modulation distortion 1	OIP3 *1, 2, 3, 4	VL_{Oout} = VIF_{out} = 3V f_{RF} = 820MHz, 820.1MHz f_{IM3} = 130.1MHz	6	12		dBm

*1 Refer to measurement circuit.
*2 Sampling guaranteed items. (AQL = 0.65%)
*3 Design-guaranteed items.
*4 f_{LO} = 950MHz, P_{RF} = −30dBm, P_{LO} = −10dBm

■ Measurement Circuit



(Component values)

R1 = 1.2kΩ	L1 = 22nH	C1 = 100pF
	L2 = 27nH	C2 = 1000pF
	L3 = 15nH	C3 = 6pF
	L4 = 10nH	C4 = 10μF
	L5 = 82nH	
	L6 = 150nH	

⚠Caution for Safety

⚠DANGER

■ This product contains Gallium Arsenide (GaAs).

GaAs powder and vapor are hazardous to human health if inhaled or ingested. Do not burn, destroy, cut, cleave off, or chemically dissolve the product. Follow related laws and ordinances for disposal. The product should be excluded from general industrial waste or household garbage.

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