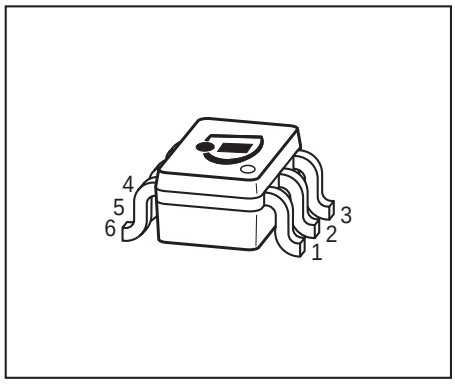
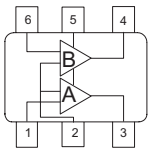
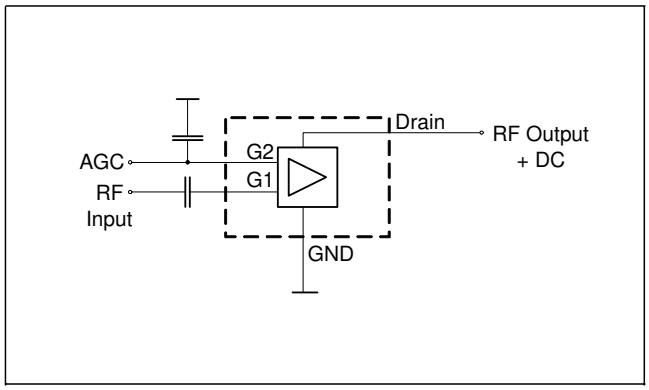
DUAL N-Channel MOSFET Tetrode



- Low noise gain controlled input stages of UHF- and VHF-tuners with 5V supply voltage
- Two AGC amplifiers in one single package
- Integrated stabilized bias network
- Integrated gate protection diodes
- High gain, low noise figure
- Improved cross modulation at gain reduction
- High AGC-range

BG3230
BG3230R





ESD (**E**lectro**s**tatic **d**ischarge) sensitive device, observe handling precaution!

Type	Package	Pin Configuration						Marking
BG3230	SOT363	1=G1*	2=G2	3=D*	4=D**	5=S	6=G1**	KBs
BG3230R	SOT363	1=G1*	2=S	3=D*	4=D**	5=G2	6=G1**	KIs

* For amp. A; ** for amp. B

180° rotated tape loading orientation available

Maximum Ratings

Parameter	Symbol	Value	Unit
Drain-source voltage	V_{DS}	8	V
Continuous drain current	I_D	25	mA
Gate 1/ gate 2-source current	$\pm I_{G1/2SM}$	1	
Gate 1/ gate 2-source voltage	$\pm V_{G1/G2S}$	6	V
Total power dissipation	P_{tot}	200	mW
Storage temperature	T_{stg}	-55 ... 150	°C
Channel temperature	T_{ch}	150	

Thermal Resistance

Parameter	Symbol	Value	Unit
Channel - soldering point[1)]	R_{thchs}	≤ 280	K/W

Electrical Characteristics

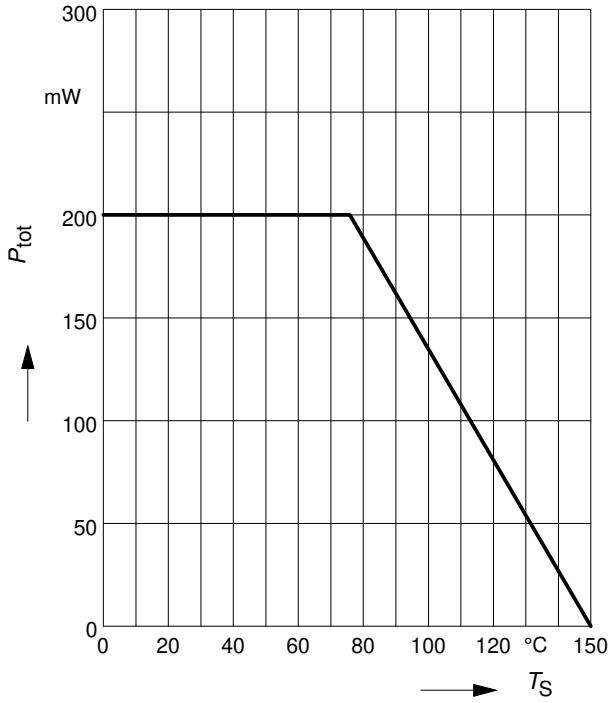
Parameter	Symbol	Values			Unit
		min.	typ.	max.	
DC Characteristics					
Drain-source breakdown voltage I_D = 100 µA, V_{G1S} = 0 , V_{G2S} = 0	$V_{(BR)DS}$	12	-	-	V
Gate1-source breakdown voltage +I_{G1S} = 10 mA, V_{G2S} = 0 , V_{DS} = 0	+$V_{(BR)G1SS}$	6	-	15	
Gate2 source breakdown voltage ±I_{G2S} = 10 mA, V_{G1S} = 0 , V_{DS} = 0	±$V_{(BR)G2SS}$	6	-	15	
Gate1-source leakage current V_{G1S} = 6 V, V_{G2S} = 0	+I_{G1SS}	-	-	50	µA
Gate 2 source leakage current ±V_{G2S} = 6 V, V_{G1S} = 0 , V_{DS} = 0	±I_{G2SS}	-	-	50	nA
Drain current V_{DS} = 5 V, V_{G1S} = 0 , V_{G2S} = 4 V	I_{DSS}	-	-	100	µA
Operating current (selfbiased) V_{DS} = 5 V, V_{G2S} = 4 V	I_{DSO}	-	13	-	mA
Gate2-source pinch-off voltage V_{DS} = 5 V, I_D = 100 µA	$V_{G2S(p)}$	-	1	-	V

[1]For calculation of R_{thJA} please refer to Application Note Thermal Resistance

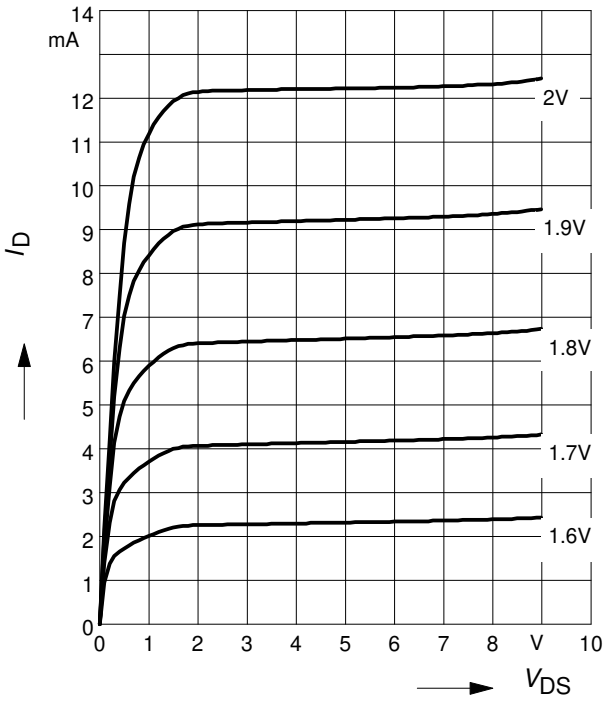
Electrical Characteristics

Parameter	Symbol	Values			Unit
		min.	typ.	max.	
AC Characteristics - (verified by random sampling)					
Forward transconductance V_{DS} = 5 V, V_{G2S} = 4 V	g_{fs}	-	33	-	mS
Gate1 input capacitance V_{DS} = 5 V, V_{G2S} = 4 V, f = 10 MHz	C_{g1ss}	-	1.9	-	pF
Output capacitance V_{DS} = 5 V, V_{G2S} = 4 V, f = 10 MHz	C_{dss}	-	1.1	-	
Power gain (self biased) V_{DS} = 5 V, V_{G2S} = 4 V, f = 800 MHz V_{DS} = 5 V, V_{G2S} = 4 V, f = 45 MHz	G_p	 - -	 24 31	 - -	dB
Noise figure (self biased) V_{DS} = 5 V, V_{G2S} = 4 V, f = 800 MHz V_{DS} = 5 V, V_{G2S} = 4 V, f = 45 MHz	F	 - -	 1.3 1.7	 - -	dB
Gain control range V_{DS} = 5 V, V_{G2S} = 4...0 V, f = 800 MHz	ΔG_p	45	-	-	
Cross-modulation k=1%, f_w=50MHz, f_{unw}=60MHz AGC = 0 dB AGC = 10 dB AGC = 40 dB	X_{mod}	 90 - 96	 - 87 100	 - - -	-

Total power dissipation $P_{tot} = f(T_S)$



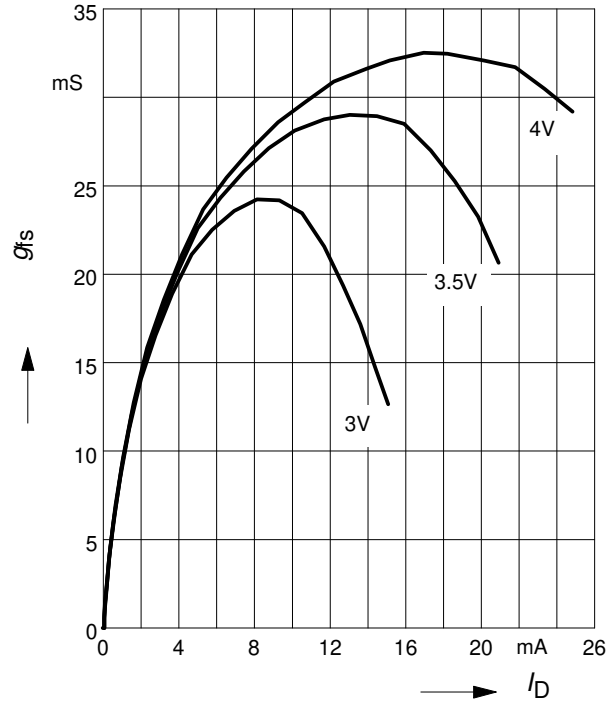
Output characteristics $I_D = f(V_{DS})$



Gate 1 forward transconductance

$g_{fs} = f(I_D)$

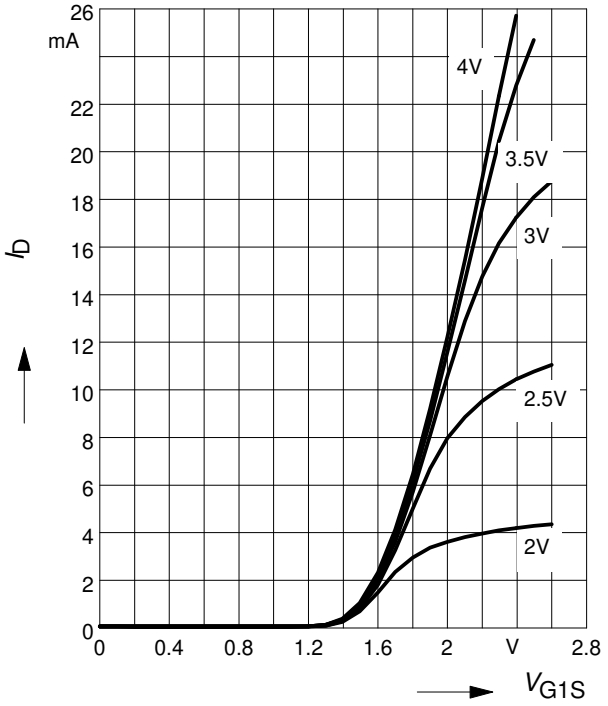
V_{DS} = 5V, V_{G2S} = Parameter



Drain current $I_D = f(V_{G1S})$

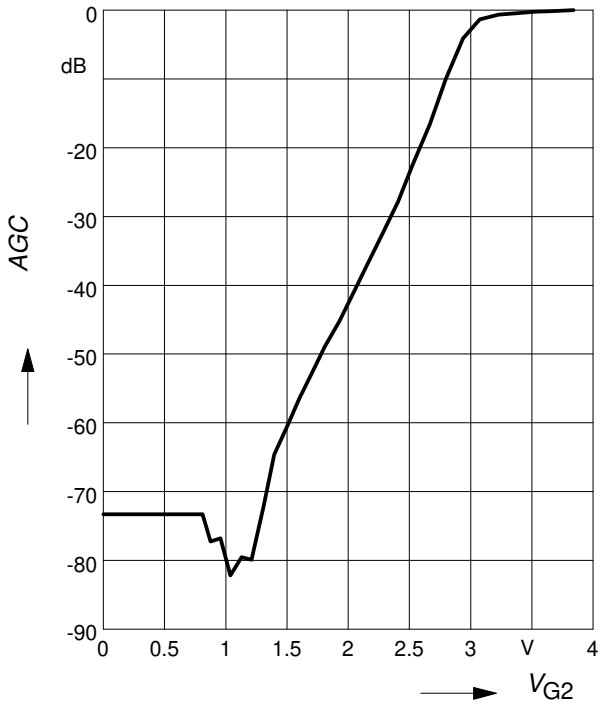
V_{DS} = 5V

V_{G2S} = Parameter



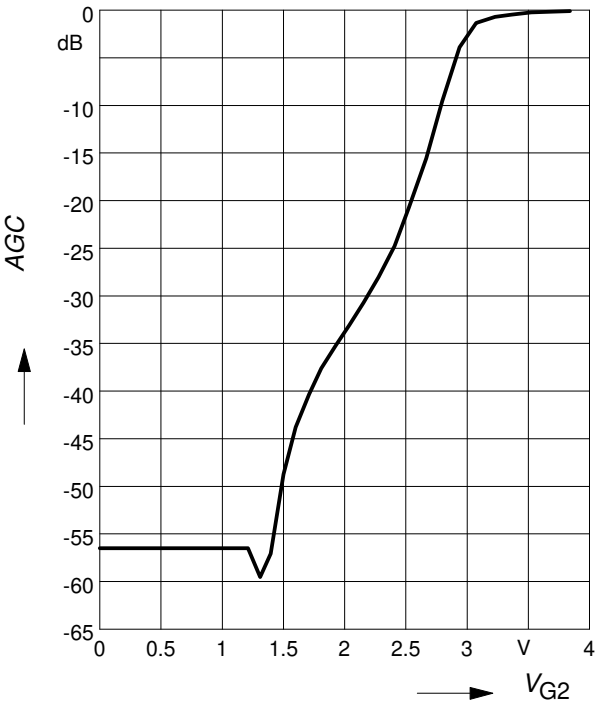
AGC characteristic $AGC = f(V_{G2S})$

f = 200 MHz



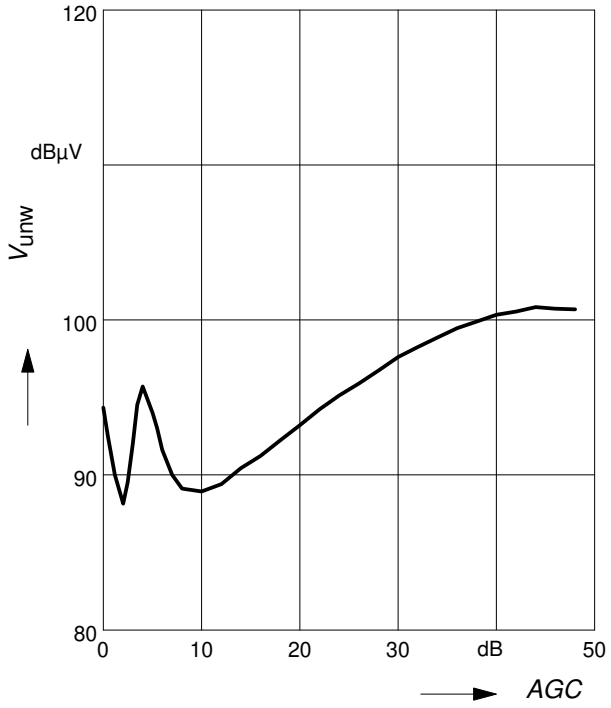
AGC characteristic $AGC = f(V_{G2S})$

f = 800 MHz

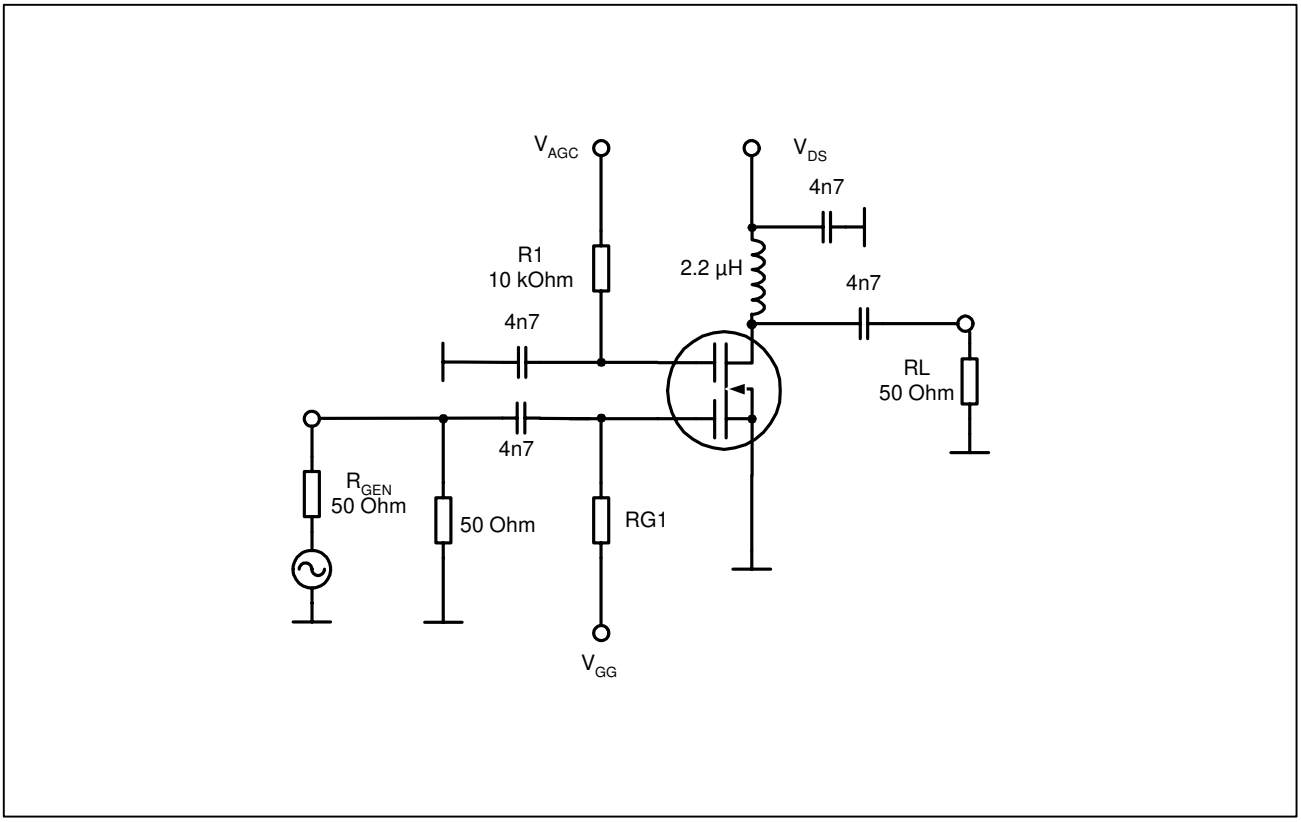


Crossmodulation $V_{unw} = (AGC)$

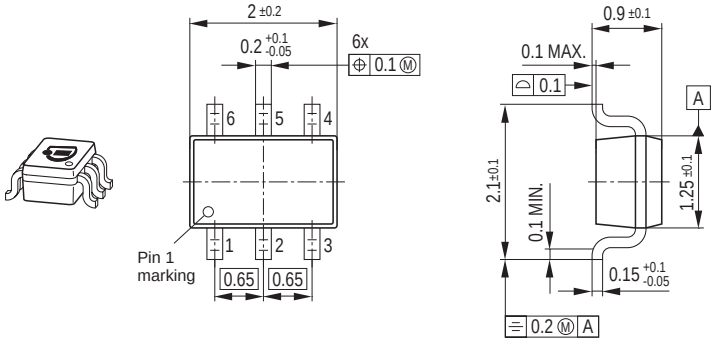
V_{DS} = 5 V, R_{g1} = 68 kΩ



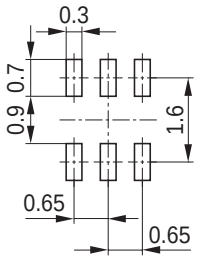
Crossmodulation test circuit



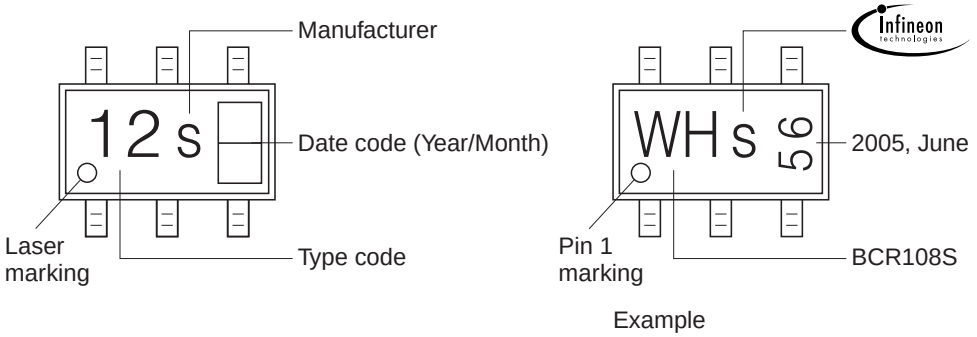
Package Outline



Foot Print

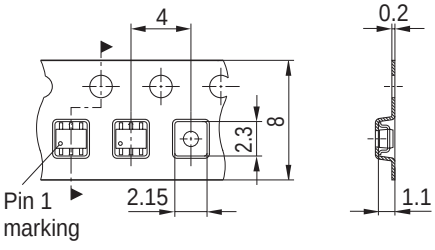


Marking Layout



Standard Packing

Reel ø180 mm = 3.000 Pieces/Reel
Reel ø330 mm = 10.000 Pieces/Reel



Published by Infineon Technologies AG,
St.-Martin-Strasse 53,
81669 München

Attention please!

The information herein is given to describe certain components and shall not be considered as a guarantee of characteristics.
Terms of delivery and rights to technical change reserved.
We hereby disclaim any and all warranties, including but not limited to warranties of non-infringement, regarding circuits, descriptions and charts stated herein.

Information

For further information on technology, delivery terms and conditions and prices please contact your nearest Infineon Technologies Office (www.Infineon.com).

Warnings

Due to technical requirements components may contain dangerous substances. For information on the types in question please contact your nearest Infineon Technologies Office.
Infineon Technologies Components may only be used in life-support devices or systems with the express written approval of Infineon Technologies, if a failure of such components can reasonably be expected to cause the failure of that life-support device or system, or to affect the safety or effectiveness of that device or system. Life support devices or systems are intended to be implanted in the human body, or to support and/or maintain and sustain and/or protect human life. If they fail, it is reasonable to assume that the health of the user or other persons may be endangered.