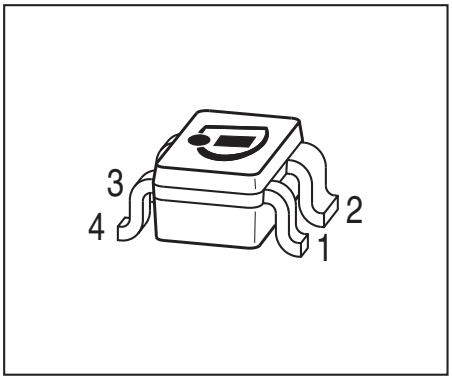
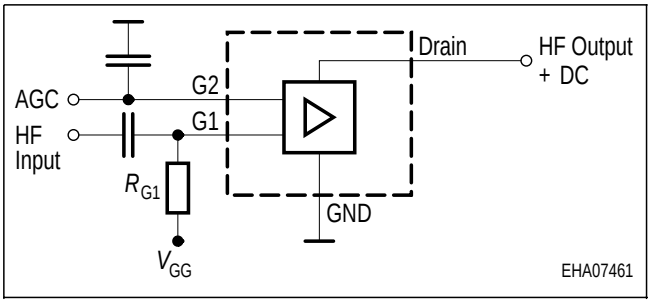
Silicon N-Channel MOSFET Tetrode



- Low noise gain controlled input stages of UHF- and VHF - tuners with 3 V up to 5 V supply voltage
- Integrated gate protection diodes
- Excellent noise figure
- High gain, high forward transadmittance
- Improved cross modulation at gain reduction
- Pb-free (RoHS compliant) package
- Qualified according AEC Q101

AEC Qualified RoHS



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

Type	Package	Pin Configuration						Marking
BF5020	SOT143	1 = S	2 = D	3 = G2	4 = G1	-	-	KYs
BF5020R	SOT143R	1 = D	2 = S	3 = G1	4 = G2	-	-	KYs
BF5020W	SOT343	1 = D	2 = S	3 = G1	4 = G2	-	-	KYs

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	I_{G1S}, I_{G2S}	± 10	mA
Gate 1/ gate 2-source voltage	V_{G1S}, V_{G2S}	± 6	V
Total power dissipation	P_{tot}		mW
$T_S \leq 76$ °C, BF5020, BF5020R		200	
$T_S \leq 94$ °C, BF5020W		200	
Storage temperature	T_{stg}	-55 ... 150	°C
Channel temperature	T_{ch}	150	

Thermal Resistance

Parameter	Symbol	Value	Unit
Channel - soldering point[1)]	R_{thchs}		K/W
BF5020, BF5020R		≤ 370	
BF5020W		≤ 280	

Electrical Characteristics at T_A = 25°C, unless otherwise specified

Parameter	Symbol	Values			Unit
		min.	typ.	max.	
DC Characteristics					
Drain-source breakdown voltage I_D = 20 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 , V_{DS} = 0	+I_{G1SS}	-	-	50	nA
Gate2-source leakage current V_{G2S} = 6 V, V_{G1S} = 0 , V_{DS} = 0	+I_{G2SS}	-	-	50	
Drain current V_{DS} = 5 V, V_{G1S} = 0 , V_{G2S} = 4 V	I_{DSS}	-	-	100	
Drain-source current V_{DS} = 5 V, V_{G2S} = 4 V, R_{G1} = 120 kΩ	I_{DSX}	-	14	-	mA
Gate1-source pinch-off voltage V_{DS} = 5 V, V_{G2S} = 4 V, I_D = 20 µA	$V_{G1S(p)}$	-	0.7	-	V
Gate2-source pinch-off voltage V_{DS} = 5 V, I_D = 20 µA, V_{G1S} = 2 V	$V_{G2S(p)}$	-	0.7	-	

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

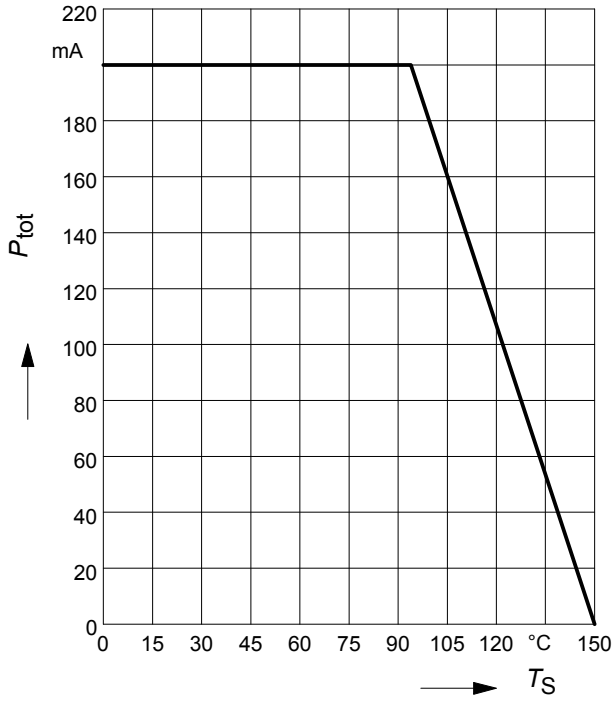
Electrical Characteristics at T_A = 25°C, unless otherwise specified

Parameter	Symbol	Values			Unit
		min.	typ.	max.	
AC Characteristics - (verified by random sampling)					
Forward transconductance V_{DS} = 5 V, I_D = 10 mA, V_{G2S} = 4 V	g_{fs}	-	34	-	mS
Gate1 input capacitance V_{DS} = 5 V, I_D = 10 mA, V_{G2S} = 4 V	C_{g1ss}	-	2.4	-	pF
Output capacitance V_{DS} = 5 V, I_D = 10 mA, V_{G2S} = 4 V	C_{dss}	-	1	-	
Power gain V_{DS} = 5 V, I_D = 10 mA, V_{G2S} = 4 V, f = 800 MHz V_{DS} = 5 V, I_D = 10 mA, V_{G2S} = 4 V, f = 45 MHz	G_p	 - -	 26 32	 - -	dB
Noise figure V_{DS} = 5 V, I_D = 10 mA, V_{G2S} = 4 V, f = 800 MHz V_{DS} = 5 V, I_D = 10 mA, V_{G2S} = 4 V, f = 45 MHz	F	 - -	 1.2 0.8	 - -	dB
Gain control range V_{DS} = 5 V, V_{G2S} = 4...0 V	ΔG_p	-	45	-	
Cross-modulation[1], V_{DS} = 5 V, R_{G1} = 120 kΩ AGC = 0 AGC = 10 dB AGC = 40 dB	X_{mod}	 - - -	 98 96 106	 - - -	dBµV

[1]Input level for k = 1%; f_w = 50 MHz, f_{unw} = 60 MHz

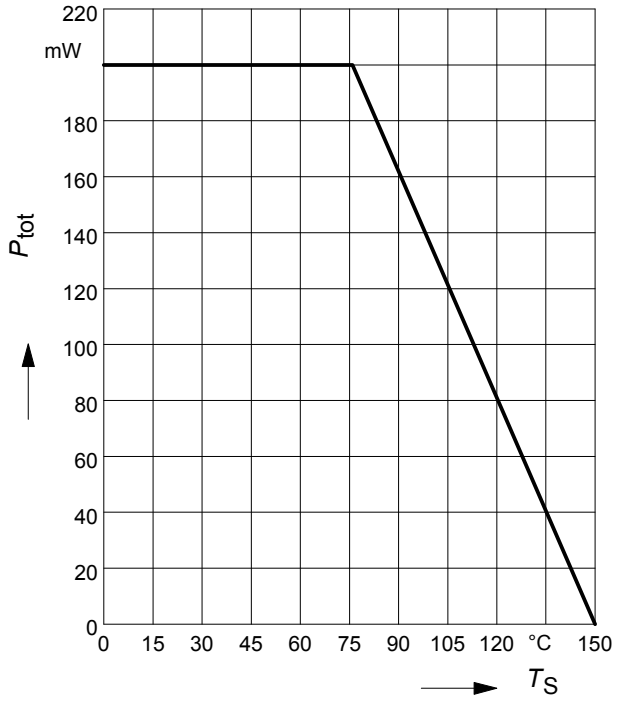
Total power dissipation $P_{tot} = f(T_S)$

BF5020W

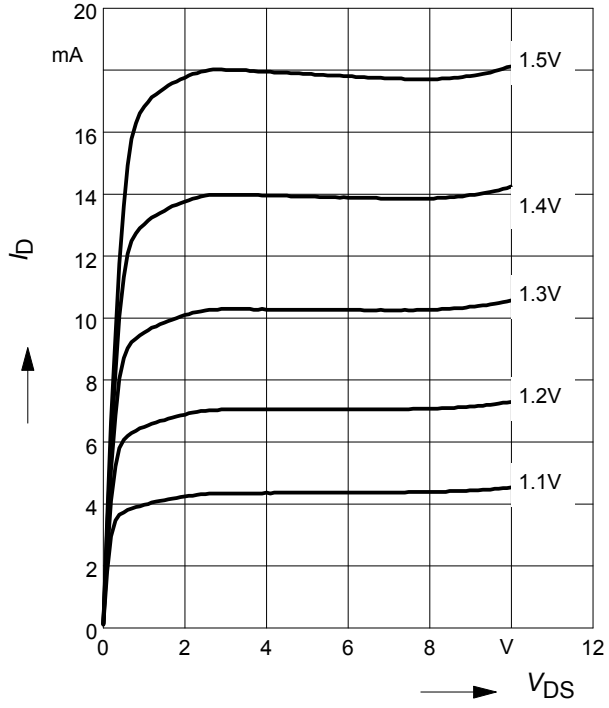


Total power dissipation $P_{tot} = f(T_S)$

BF5020, BF5020R



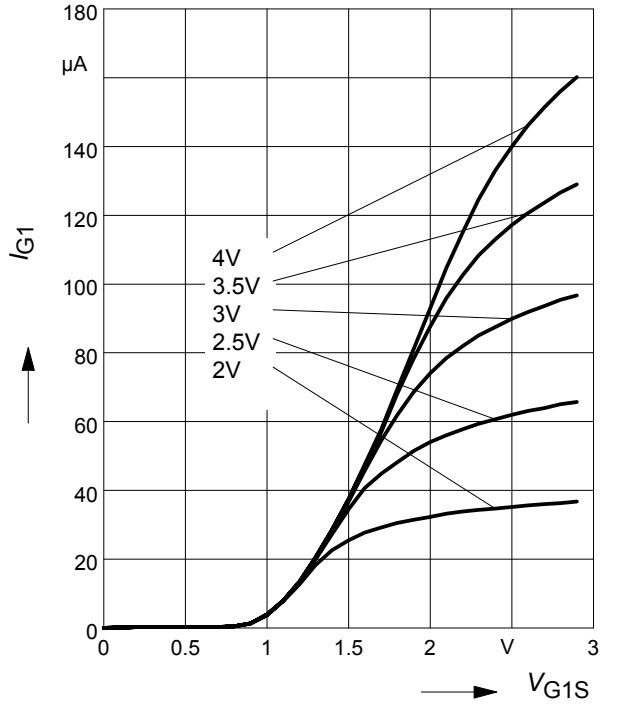
Output characteristics $I_D = f(V_{DS})$



Gate 1 current $I_{G1} = f(V_{G1S})$

V_{DS} = 5V

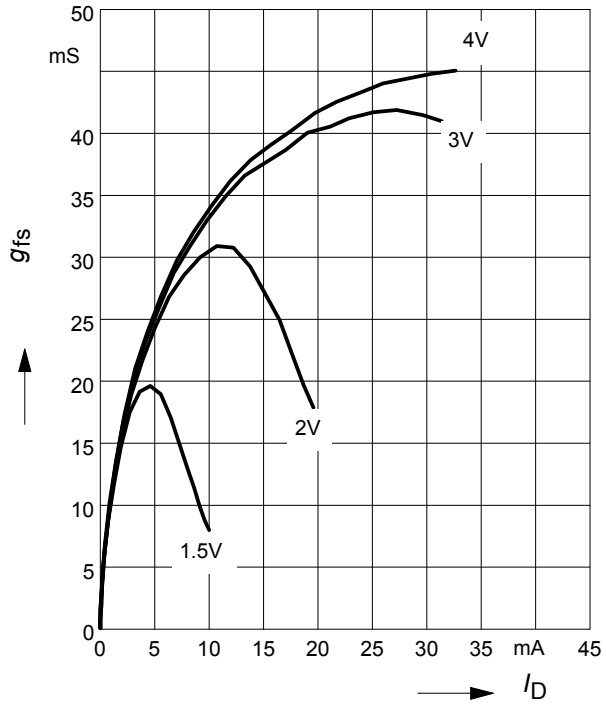
V_{G2S} = Parameter



Gate 1 forward transconductance

$g_{fs} = f(I_D)$

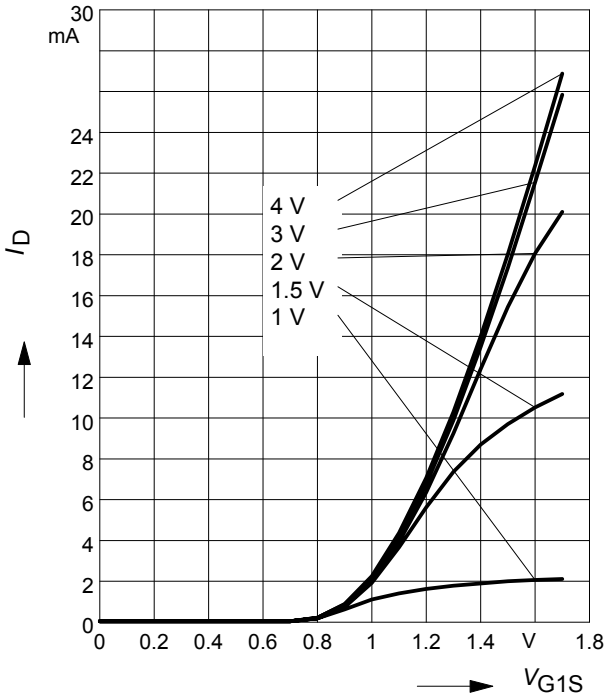
V_{DS} = 5V, V_{G2S} = Parameter



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

V_{DS} = 5V

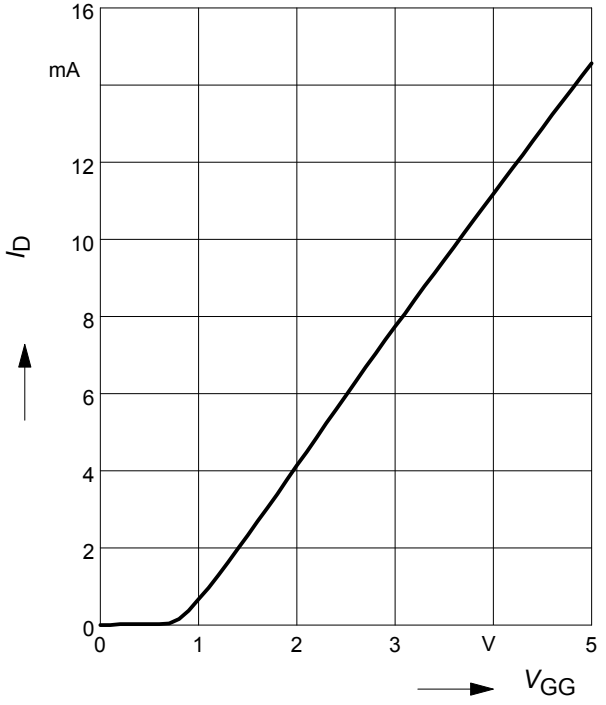
V_{G2S} = Parameter



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

V_{DS} = 5V, V_{G2S} = 4V, R_{G1} = 120 kΩ

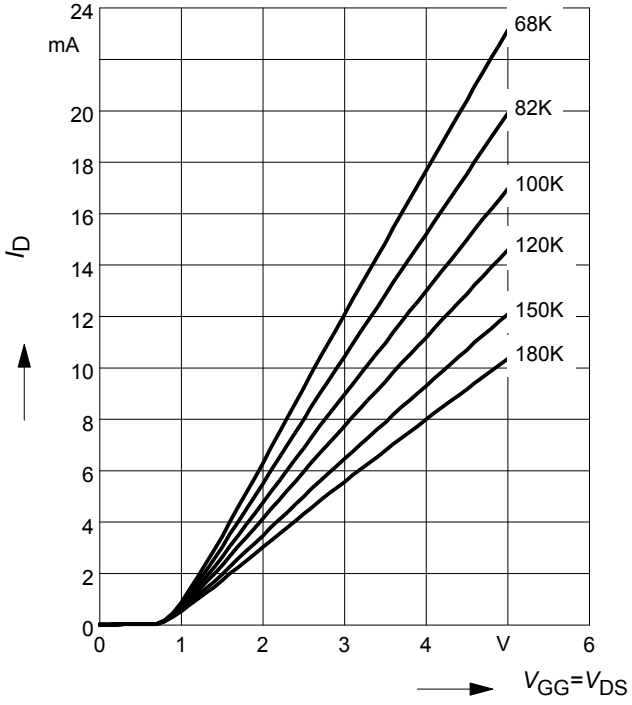
(connected to V_{GG}, V_{GG}=gate1 supply voltage)



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

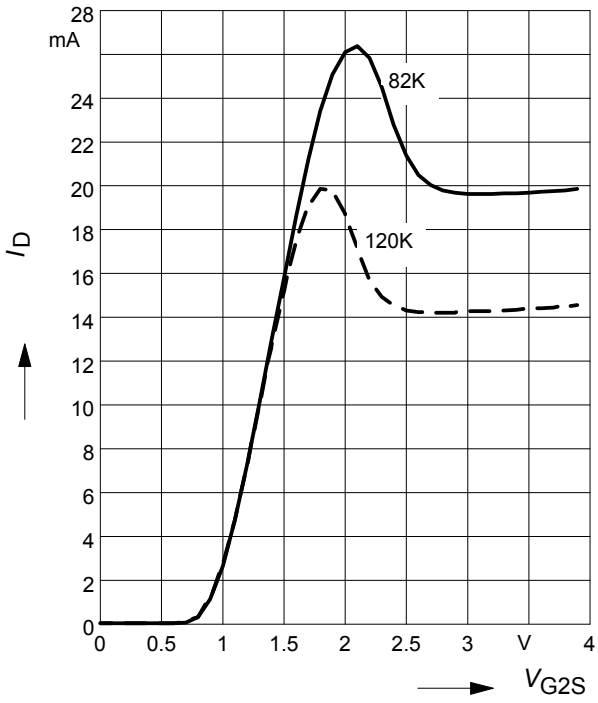
V_{G2S} = 4V

R_{G1} = Parameter in kΩ



Drain current $I_D = f(V_{G2S})$

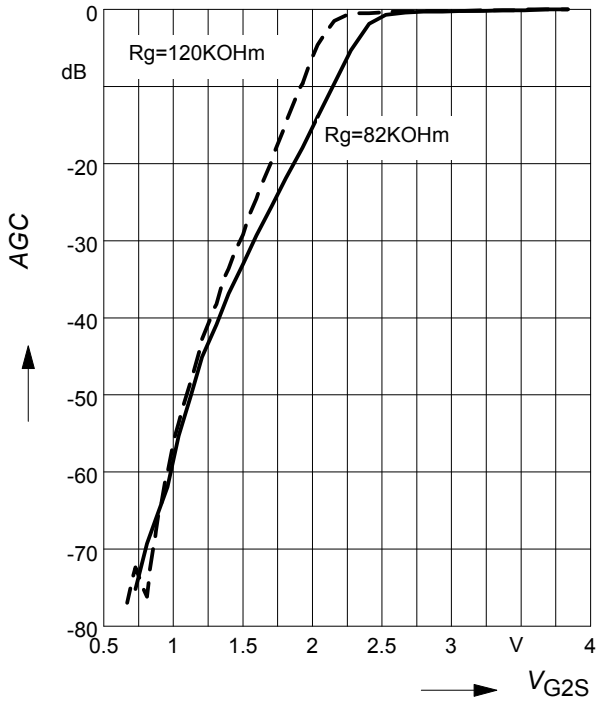
V_{DS} = 5 V, R_{G1} = Parameter in kΩ



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

f = 50 MHz

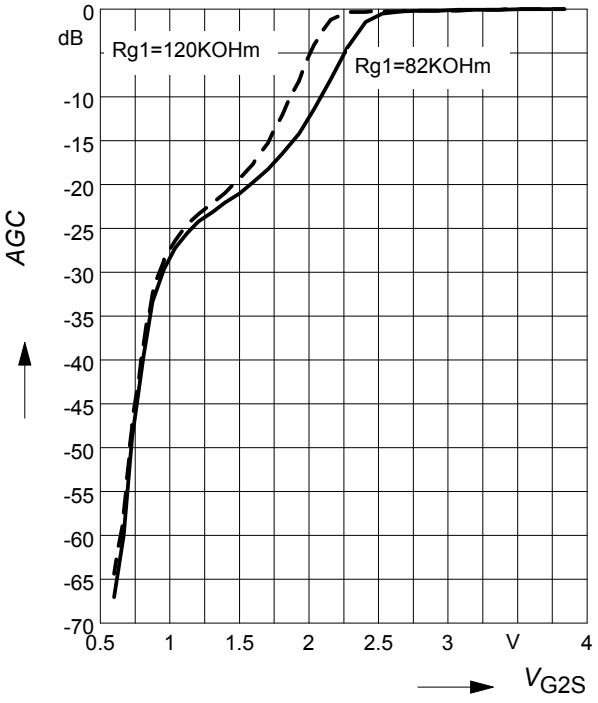
measured in test circuit, see page 7



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

f = 800 MHz

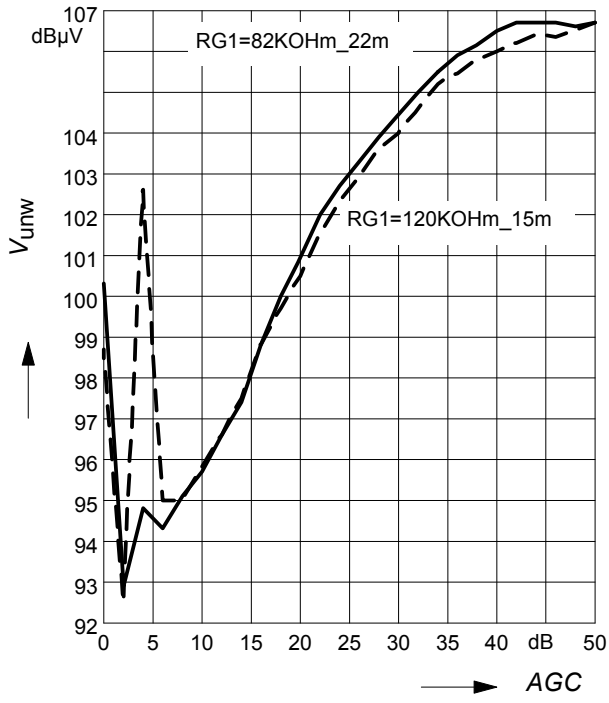
measured in test circuit, see page 7



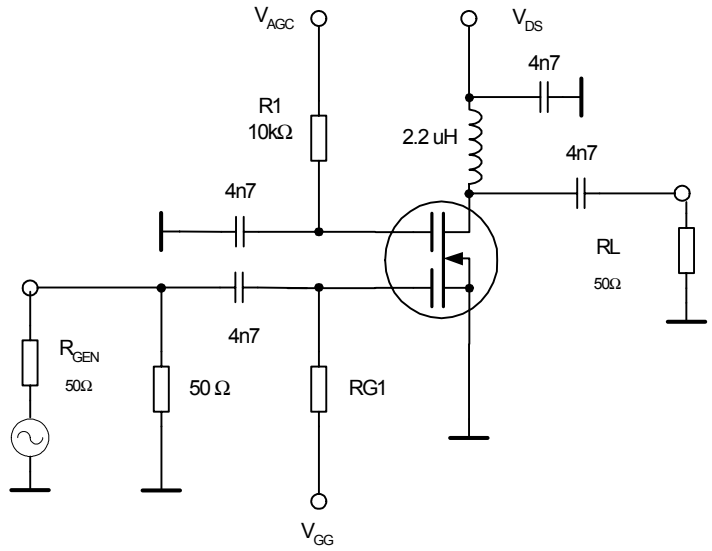
Crossmodulation V_{unw} = (AGC)

V_{DS} = 5 V

measured in test circuit, see page 7

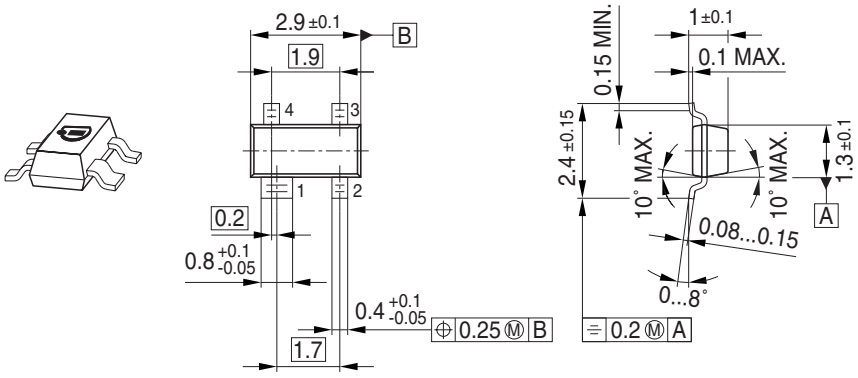


Test circuit for Crossmodulation / AGC

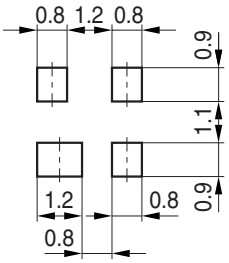


Semibiased

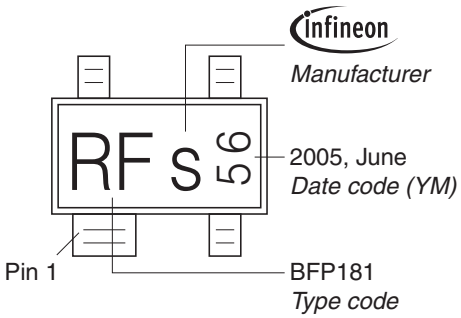
Package Outline



Foot Print

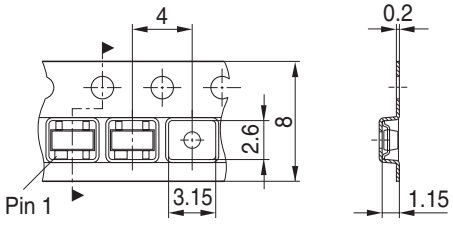


Marking Layout (Example)

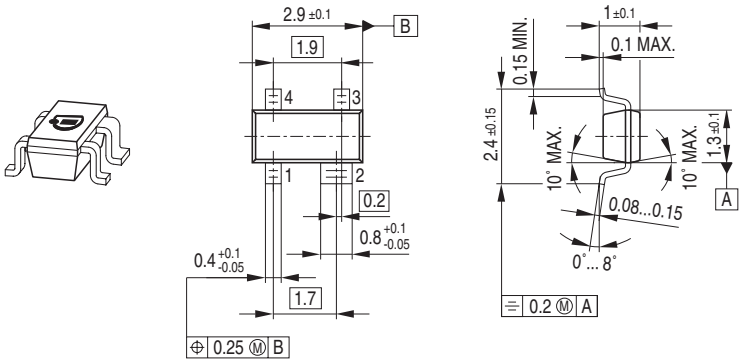


Standard Packing

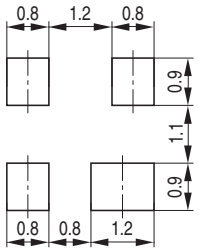
Reel ø180 mm = 3.000 Pieces/Reel
Reel ø330 mm = 10.000 Pieces/Reel



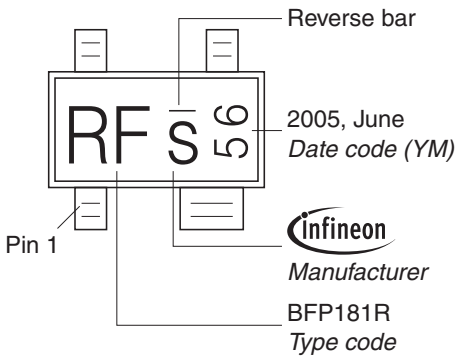
Package Outline



Foot Print

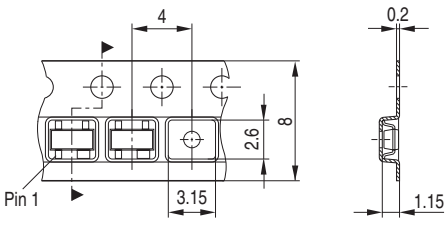


Marking Layout (Example)

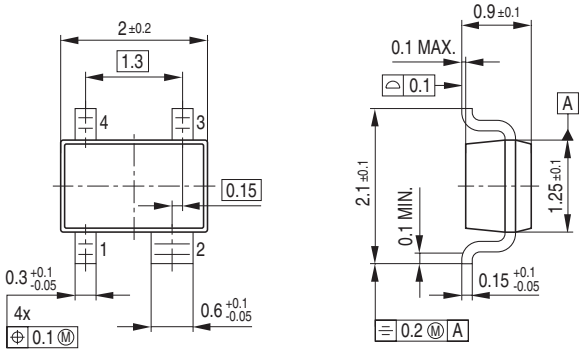


Standard Packing

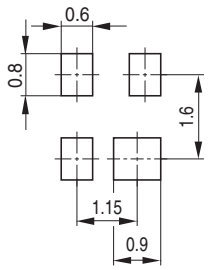
Reel ø180 mm = 3.000 Pieces/Reel
Reel ø330 mm = 10.000 Pieces/Reel



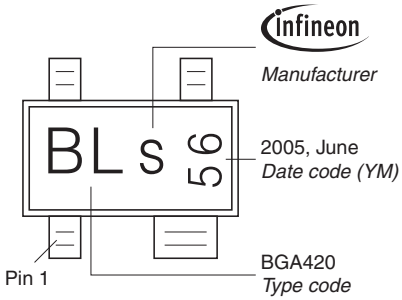
Package Outline



Foot Print

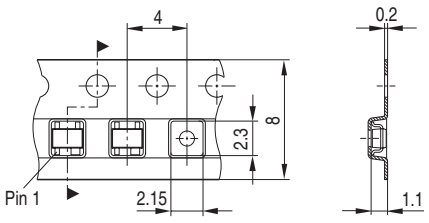


Marking Layout (Example)



Standard Packing

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



Edition 2006-02-01
Published by
Infineon Technologies AG
81726 München, Germany

Attention please!

The information given in this dokument shall in no event be regarded as a guarantee of conditions or characteristics (“Beschaffenheitsgarantie”). With respect to any examples or hints given herein, any typical values stated herein and/or any information regarding the application of the device, Infineon Technologies hereby disclaims any and all warranties and liabilities of any kind, including without limitation warranties of non-infringement of intellectual property rights of any third party.

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.

Общество с ограниченной ответственностью «МосЧип» ИНН 7719860671 / КПП 771901001
Адрес: 105318, г.Москва, ул.Щербаковская д.3, офис 1107

Данный компонент на территории Российской Федерации

Вы можете приобрести в компании MosChip.

Для оперативного оформления запроса Вам необходимо перейти по данной ссылке:

http://moschip.ru/get-element

Вы можете разместить у нас заказ для любого Вашего проекта, будь то серийное производство или разработка единичного прибора.

В нашем ассортименте представлены ведущие мировые производители активных и пассивных электронных компонентов.

Нашей специализацией является поставка электронной компонентной базы двойного назначения, продукции таких производителей как XILINX, Intel (ex.ALTERA), Vicor, Microchip, Texas Instruments, Analog Devices, Mini-Circuits, Amphenol, Glenair.

Сотрудничество с глобальными дистрибьюторами электронных компонентов, предоставляет возможность заказывать и получать с международных складов практически любой перечень компонентов в оптимальные для Вас сроки.

На всех этапах разработки и производства наши партнеры могут получить квалифицированную поддержку опытных инженеров.

Система менеджмента качества компании отвечает требованиям в соответствии с ГОСТ Р ИСО 9001, ГОСТ РВ 0015-002 и ЭС РД 009

Офис по работе с юридическими лицами:

105318, г.Москва, ул.Щербаковская д.3, офис 1107, 1118, ДЦ «Щербаковский»

Телефон: +7 495 668-12-70 (многоканальный)

Факс: +7 495 668-12-70 (доб.304)

E-mail: info@moschip.ru

Skype отдела продаж:
moschip.ru
moschip.ru_4
moschip.ru_6
moschip.ru_9