OptiMOS®-P Small-Signal-Transistor

Features

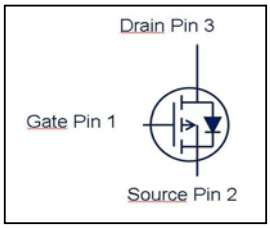
- P-Channel
- Enhancement mode
- Super Logic level (2.5 V rated)
- 150°C operating temperature
- Avalanche rated
- d*v*/d*t* rated
- Pb-free lead plating; RoHS compliant
- Qualified according to AEC Q101
- Halogen-free according to IEC61249-2-21

RoHS AEC Qualified Halogen-Free

Product Summary

V_{DS}	-20	V
$R_{DS(on),max}$	550	mΩ
I_D	-0.63	A

PG-SOT-323



Type	Package	Tape and Reel Information	Marking	Lead free	Packing
BSS 209PW	SOT-323	H6327: 1000 pcs/reel	X3s	Yes	Non Dry

Maximum ratings, at T_j=25 °C, unless otherwise specified

Parameter	Symbol	Conditions	Value	Unit
Continuous drain current	I_D	T_C=25 °C	-0.63	A
		T_C=70 °C	-0.5	
Pulsed drain current	$I_{D,pulse}$	T_C=25 °C	-2.5	
Avalanche energy, single pulse	E_{AS}	I_D= -0.63 A, R_{GS}=25 Ω	4.0	mJ
Reverse diode d*v*/d*t*	d*v*/d*t*	I_D= -0.63 A, V_{DS}=-16 V, d*i*/d*t* =-200 A/µs, $T_{j,max}$=150 °C	-6	kV/µs
Gate source voltage	V_{GS}		±12	V
Power dissipation	P_{tot}	T_A=25 °C	0.30	W
Operating and storage temperature	T_j, T_{stg}		-55 ... 150	°C
ESD class		JESD22-C101 (HBM)	0 (max 250V)	
Soldering temperature			260 °C	
IEC climatic category; DIN IEC 68-1			55/150/56	

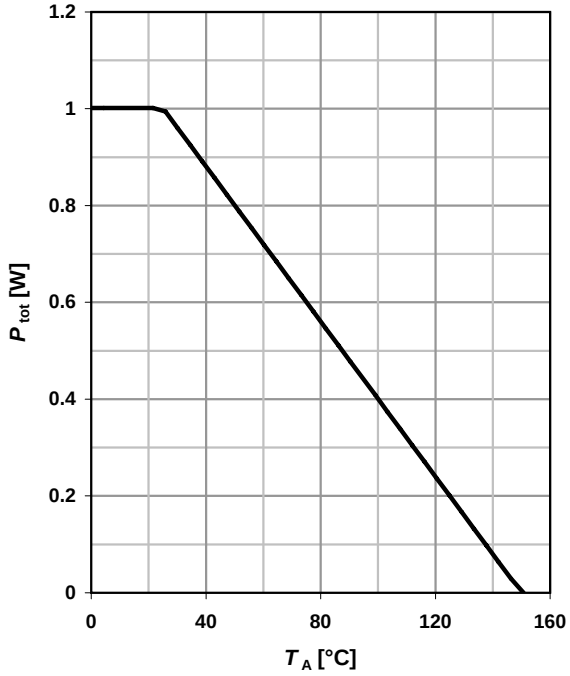
Parameter	Symbol	Conditions	Values			Unit
			min.	typ.	max.	
Thermal characteristics						
Thermal resistance, junction - soldering point	R_{thJS}		-	-	120	K/W
SMD version, device on PCB:	R_{thJA}	minimal footprint	-	-	420	
		6 cm^2 cooling area[1)]	-	-	350	
Electrical characteristics, at T_j=25 °C, unless otherwise specified						
Static characteristics						
Drain-source breakdown voltage	$V_{(BR)DSS}$	V_{GS}=0 V, I_D=-250µA	-20	-	-	V
Gate threshold voltage	$V_{GS(th)}$	V_{DS}=V_{GS}, I_D=3.5 µA	-0.6	-0.9	-1.2	
Zero gate voltage drain current	I_{DSS}	V_{DS}=-20 V, V_{GS}=0 V, T_j=25 °C	-	-0.1	-1	µA
		V_{DS}=-20 V, V_{GS}=0 V, T_j=150 °C	-	-10	-100	
Gate-source leakage current	I_{GSS}	V_{GS}=12 V, V_{DS}=0 V	-	-10	-100	nA
Drain-source on-state resistance	$R_{DS(on)}$	V_{GS}=2.5 V, I_D=0.46 A	-	581	900	
		V_{GS}=4.5 V, I_D=0.63 A	-	379	550	
Transconductance	g_{fs}	$\|V_{DS}\|>2\|I_D\|R_{DS(on)max}$, I_D=0.46 A	0.87	1.74	-	S

[1)] Device on 40 mm x 40 mm x 1.5 mm epoxy PCB FR4 with 6 cm^2 (one layer, 70 µm thick) copper area for drain connection. PCB is vertical without blown air; t≤10 sec.

Parameter	Symbol	Conditions	Values			Unit
			min.	typ.	max.	
Dynamic characteristics						
Input capacitance	C_{iss}	V_{GS}=0 V, V_{DS}=-15 V, f=1 MHz	-	87	115	pF
Output capacitance	C_{oss}		-	35	46.7	
Reverse transfer capacitance	C_{rss}		-	30	45	
Turn-on delay time	$t_{d(on)}$	V_{DD}=-10 V, V_{GS}=-4.5 V, I_D=0.58 A, R_G=6 Ω	-	2.6	4.0	ns
Rise time	t_r		-	7	11	
Turn-off delay time	$t_{d(off)}$		-	6	9	
Fall time	t_f		-	4.6	6.9	
Gate Charge Characteristics[3)]						
Gate to source charge	Q_{gs}	V_{DD}=10 V, I_D=0.58 A, V_{GS}=0 to 4.5 V	-	-0.18	-0.24	nC
Gate to drain charge	Q_{gd}		-	-0.46	-0.7	
Gate charge total	Q_g		-	-1.0	-1.3	
Gate plateau voltage	$V_{plateau}$		-	-2.0	-	V
Reverse Diode						
Diode continous forward current	I_S	T_C=25 °C	-	-	-0.7	A
Diode direct current, pulsed	I_{SM}		-	-	-4.0	
Diode forward voltage	V_{SD}	V_{GS}=0 V, I_F=-0.58 A, T_j=25 °C	-	-0.92	-0.88	V
Reverse recovery time	t_{rr}	V_R=10 V, I_F=$\lvert I_S \rvert$, di_F/dt=100 A/µs	-	9	11.2	ns
Reverse recovery charge	Q_{rr}		-	1.27	1.59	nC

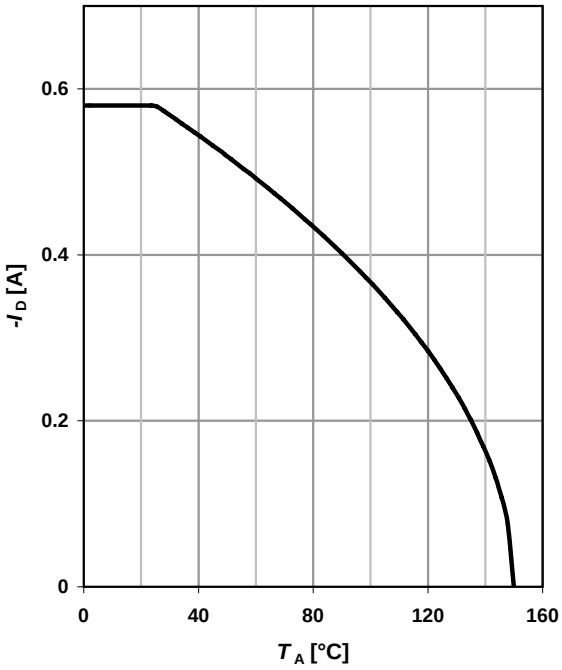
1 Power dissipation

$P_{tot}=f(T_A)$



2 Drain current

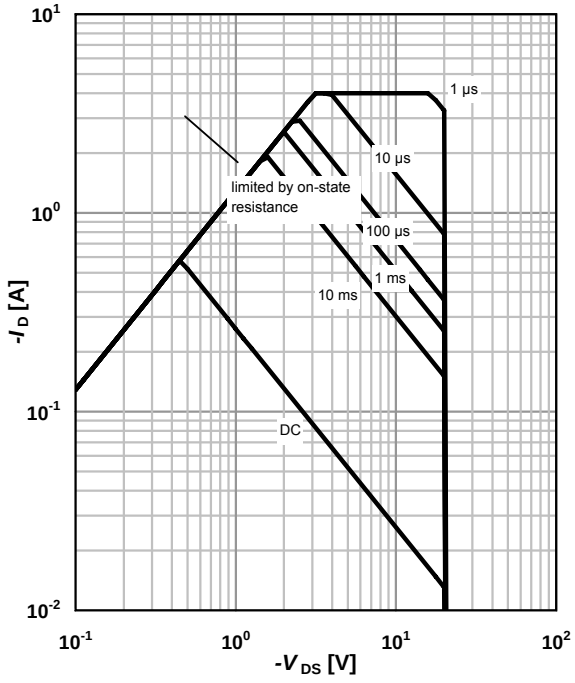
$I_D=f(T_A)$; $|V_{GS}|\geq 4.5$ V



3 Safe operating area

$I_D=f(V_{DS})$; $T_A=25$ °C[1)]; $D=0$

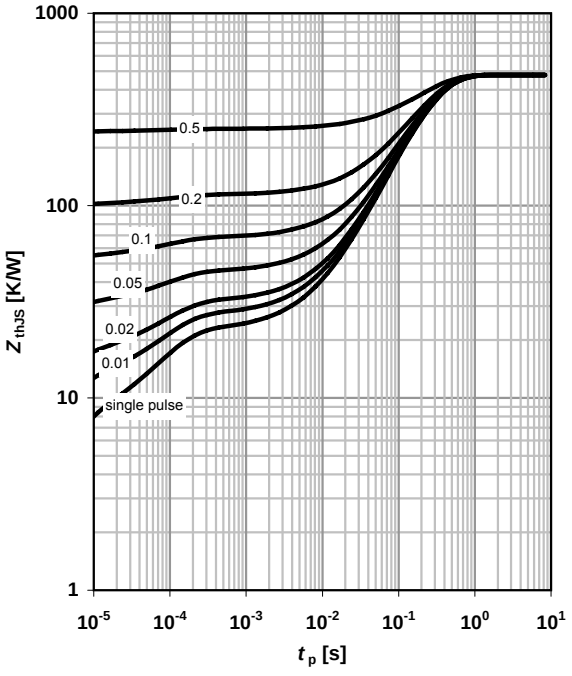
parameter: t_p



4 Max. transient thermal impedance

$Z_{thJS}=f(t_p)$

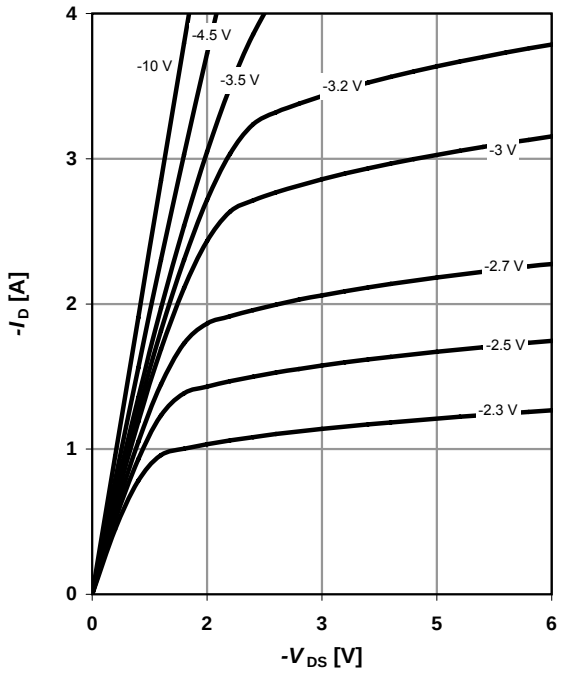
parameter: $D=t_p/T$



5 Typ. output characteristics

I_D=f(V_{DS}); T_j=25 °C

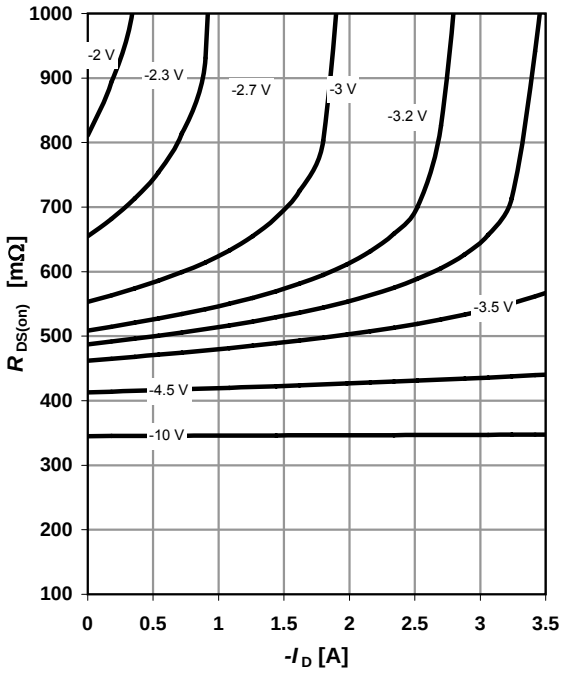
parameter: V_{GS}



6 Typ. drain-source on resistance

$R_{DS(on)}$=f(I_D); T_j=25 °C

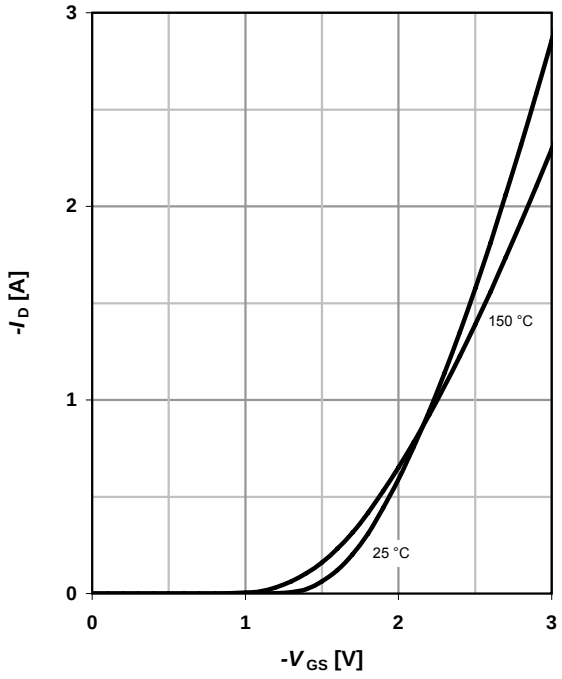
parameter: V_{GS}



7 Typ. transfer characteristics

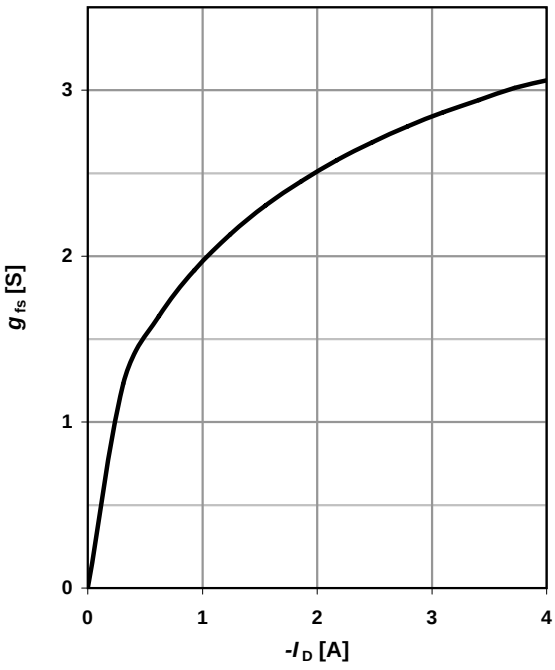
I_D=f(V_{GS}); $|V_{DS}|>2|I_D|R_{DS(on)max}$

parameter: T_j



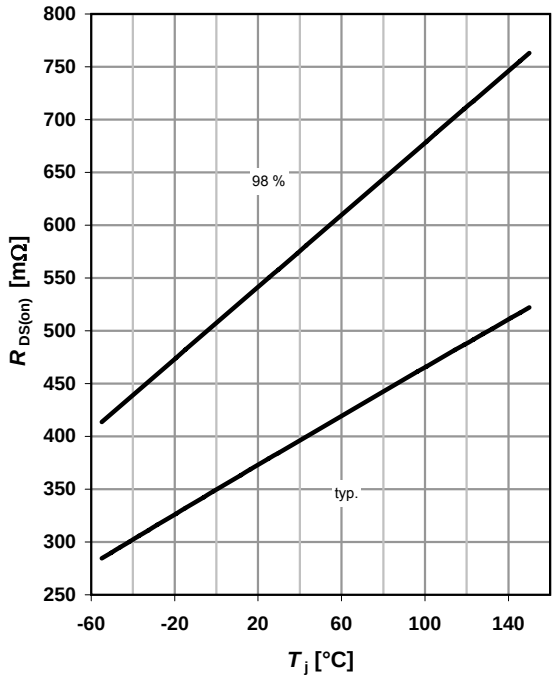
8 Typ. forward transconductance

g_{fs}=f(I_D); T_j=25 °C



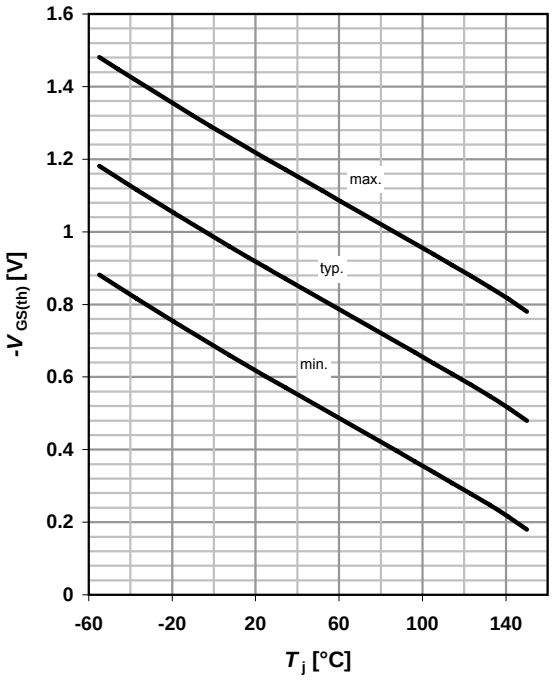
9 Drain-source on-state resistance

$R_{DS(on)}=f(T_j)$; I_D=-0.58 A; V_{GS}=-4.5 V



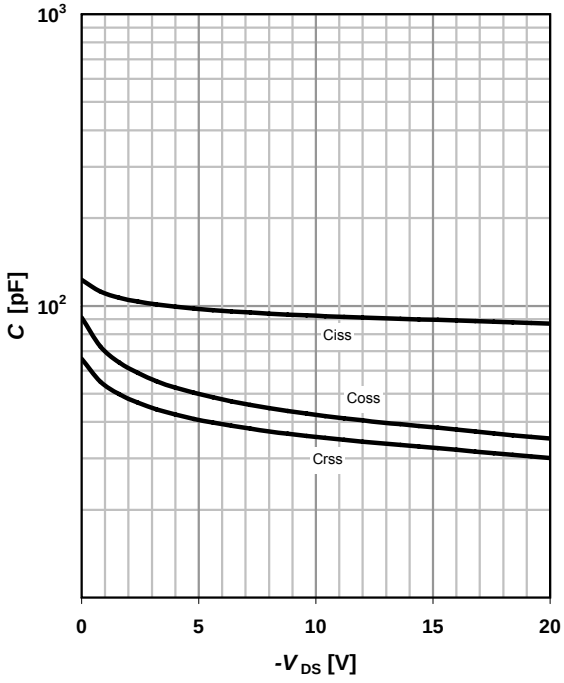
10 Typ. gate threshold voltage

$V_{GS(th)}=f(T_j)$; $V_{GS}=V_{DS}$; I_D=-3.5 µA



11 Typ. capacitances

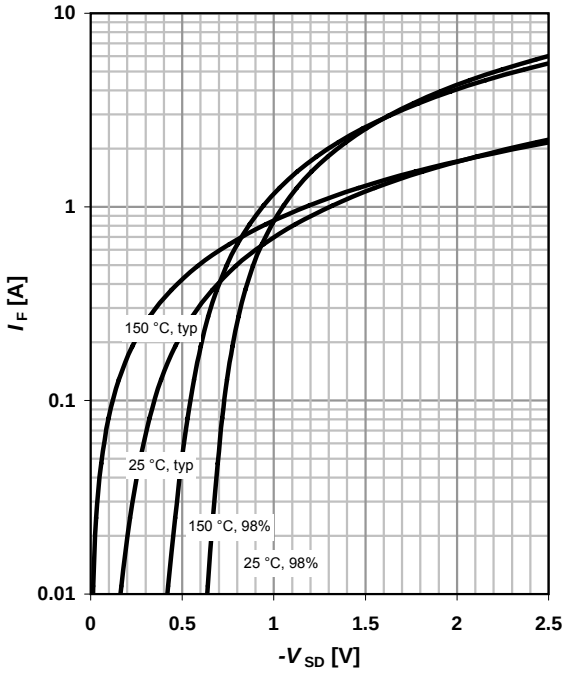
$C=f(V_{DS})$; V_{GS}=0 V; f=1 MHz



12 Forward characteristics of reverse diode

$I_F=f(V_{SD})$

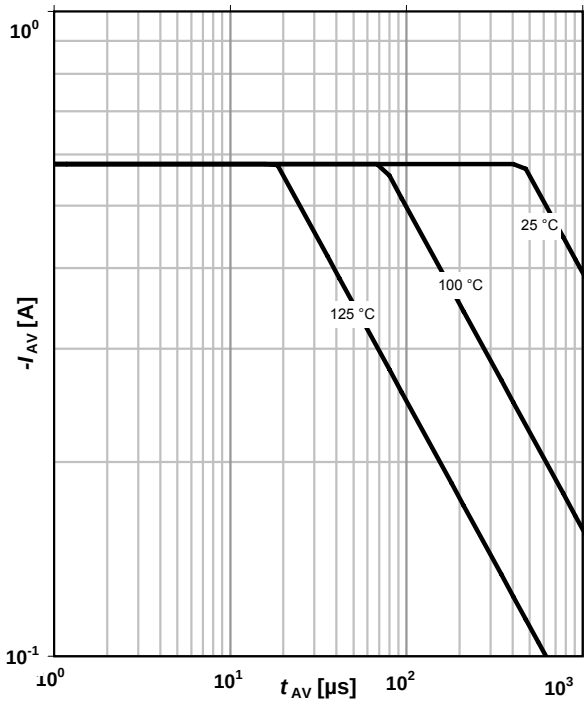
parameter: T_j



13 Avalanche characteristics

I_{AS}=f(t_{AV}); R_{GS}=25 Ω

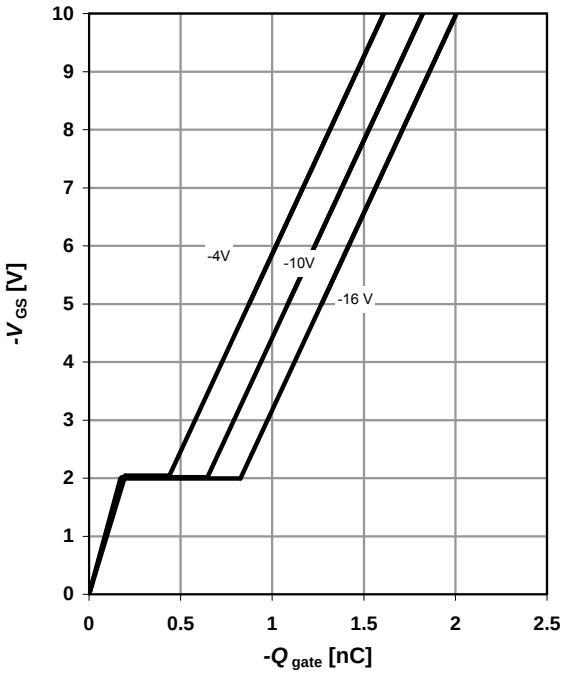
parameter: $T_{j(start)}$



14 Typ. gate charge

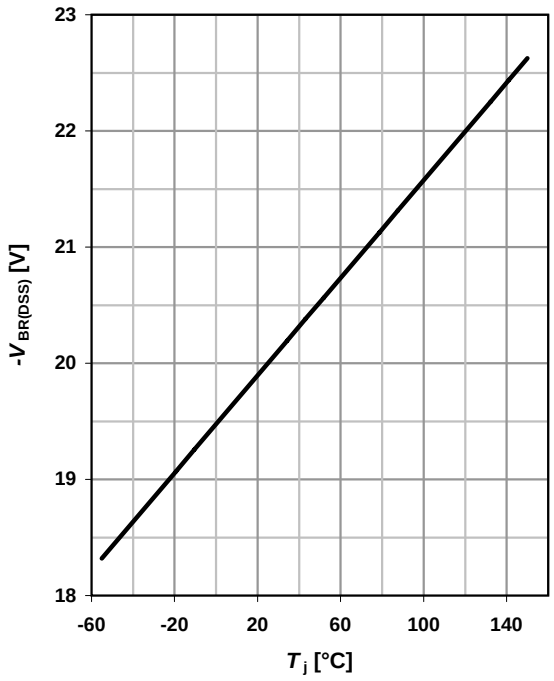
V_{GS}=f(Q_{gate}); I_D=-0.58 A pulsed

parameter: V_{DD}

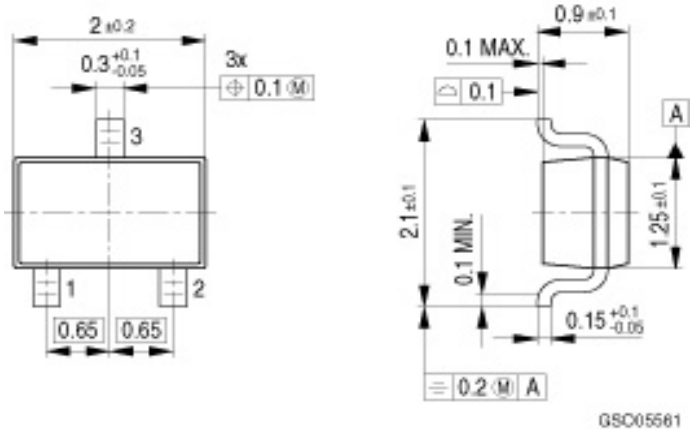


15 Drain-source breakdown voltage

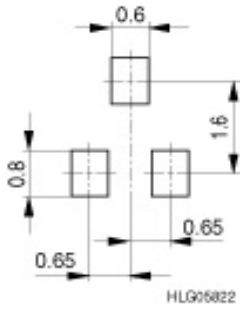
$V_{BR(DSS)}$=f(T_j); I_D=-250 µA



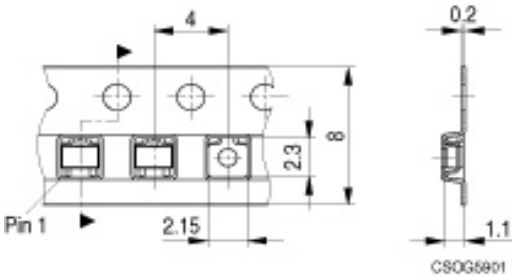
Package Outline:



Footprint:



Packaging:



Published by
Published by
Infineon Technologies AG
81726 München, Germany
© Infineon Technologies AG 2006.
All Rights Reserved.

Attention please!

The information given in this data sheet 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.

Стандарт Электрон Связь

Мы молодая и активно развивающаяся компания в области поставок электронных компонентов. Мы поставляем электронные компоненты отечественного и импортного производства напрямую от производителей и с крупнейших складов мира.

Благодаря сотрудничеству с мировыми поставщиками мы осуществляем комплексные и плановые поставки широчайшего спектра электронных компонентов.

Собственная эффективная логистика и склад в обеспечивает надежную поставку продукции в точно указанные сроки по всей России.

Мы осуществляем техническую поддержку нашим клиентам и предпродажную проверку качества продукции. На все поставляемые продукты мы предоставляем гарантию .

Осуществляем поставки продукции под контролем ВП МО РФ на предприятия военно-промышленного комплекса России , а также работаем в рамках 275 ФЗ с открытием отдельных счетов в уполномоченном банке. Система менеджмента качества компании соответствует требованиям ГОСТ ISO 9001.

Минимальные сроки поставки, гибкие цены, неограниченный ассортимент и индивидуальный подход к клиентам являются основой для выстраивания долгосрочного и эффективного сотрудничества с предприятиями радиоэлектронной промышленности, предприятиями ВПК и научно-исследовательскими институтами России.

С нами вы становитесь еще успешнее!

Наши контакты:

Телефон: +7 812 627 14 35

Электронная почта: sales@st-electron.ru

Адрес: 198099, Санкт-Петербург, Промышленная ул, дом № 19, литера Н, помещение 100-Н Офис 331