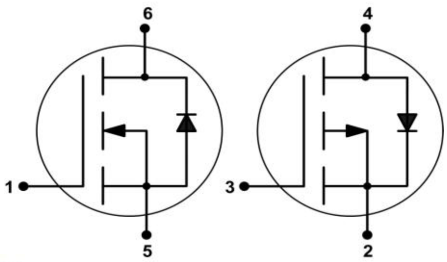
OptiMOS™2 + OptiMOS™-P 2 Small Signal Transistor

Features

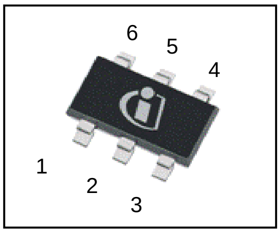
- Complementary P + N channel
- Enhancement mode
- Super Logic level (2.5V rated)
- Avalanche rated
- Qualified according to AEC Q101
- 100% lead-free; RoHS compliant
- Halogen free according to IEC61249-2-21

Product Summary

		P	N	
V_{DS}		-20	20	V
$R_{DS(on),max}$	V_{GS}=±4.5 V	150	140	mΩ
	V_{GS}=±2.5 V	280	250	
I_D		-1.5	1.5	A



PG-TSOP6



AEC Qualified RoHS Halogen-Free

Type	Package	Tape and Reel Information	Marking	Lead Free	Packing
BSL215C	PG-TSOP-6	H6327: 3000 pcs / reel	sPH	Yes	Non dry

Maximum ratings, at T_j=25 °C, unless otherwise specified [1)]

Parameter	Symbol	Conditions	Value		Unit
			P	N	
Continuous drain current	I_D	T_A=25 °C	-1.5	1.5	A
		T_A=70 °C	-1.2	1.2	
Pulsed drain current	$I_{D,pulse}$	T_A=25 °C	-6	6	
Avalanche energy, single pulse	E_{AS}	P: I_D=-1.5 A, N: I_D=1.5 A, R_{GS}=25 Ω	11	3.7	mJ
Gate source voltage	V_{GS}		±12		V
Power dissipation	P_{tot}	T_A=25 °C	0.5		W
Operating and storage temperature	T_j, T_{stg}		-55 ... 150		°C
ESD class		JESD22-A114-HBM	0 (<250V)		
Soldering temperature	T_{solder}		260		°C
IEC climatic category; DIN IEC 68-1			55/150/56		

[1)] Remark: only one of both transistors active

Parameter		Symbol	Conditions	Values			Unit
				min.	typ.	max.	
Thermal characteristics							
Thermal resistance, junction - ambient	P	R_{thJA}	minimal footprint [2)]	-	-	250	K/W
	N						
Electrical characteristics, at T_j=25 °C, unless otherwise specified							
Static characteristics							
Drain-source breakdown voltage	P	$V_{(BR)DSS}$	V_{GS}=0 V, I_D=-250 µA	-	-	-20	V
	N		V_{GS}=0 V, I_D=250 µA	20	-	-	
Gate threshold voltage	P	$V_{GS(th)}$	V_{DS}=V_{GS}, I_D=-11 µA	-1.2	-0.9	-0.6	
	N		V_{DS}=V_{GS}, I_D=3.7 µA	0.7	0.95	1.2	
Zero gate voltage drain current	P	I_{DSS}	V_{DS}=-20 V, V_{GS}=0 V, T_j=25 °C	-	-	-1	µA
	N		V_{DS}=20 V, V_{GS}=0 V, T_j=25 °C	-	-	1	
	P		V_{DS}=-20 V, V_{GS}=0 V, T_j=150 °C	-	-	-100	
	N		V_{DS}=20 V, V_{GS}=0 V, T_j=150 °C	-	-	100	
Gate-source leakage current	P	I_{GSS}	V_{GS}=±12 V, V_{DS}=0 V	-	-	±100	nA
	N						
Drain-source on-state resistance	P	$R_{DS(on)}$	V_{GS}=-2.5V, I_D=-1.1 A	-	163	280	mΩ
	N		V_{GS}=2.5 V, I_D=0.7 A	-	173	250	
	P		V_{GS}=-4.5V, I_D=-1.5 A	-	102	150	
	N		V_{GS}=4.5 V, I_D=1.5 A	-	108	140	
Transconductance	P	g_{fs}	$\|V_{DS}\|>2\|I_D\|R_{DS(on)max}$, I_D=-1.2 A	-	4.5	-	S
	N		$\|V_{DS}\|>2\|I_D\|R_{DS(on)max}$, I_D=1.2 A	-	4	-	

2) Performed on 40mm^2 FR4 PCB. The traces are 1mm wide, 70µm thick and 20mm long; they are present on both sides of the PCB

Parameter		Symbol	Conditions	Values			Unit
				min.	typ.	max.	
Dynamic characteristics							
Input capacitance	P	C_{iss}	V_{GS}=0 V, P: V_{DS}=-10 V, N: V_{DS}= 10 V, f=1 MHz	-	270	346	pF
	N			-	110	143	
Output capacitance	P	C_{oss}		-	110	128	
	N			-	46	62	
Reverse transfer capacitance	P	C_{rss}		-	94	128	
	N			-	6.1	9	
Turn-on delay time	P	$t_{d(on)}$	P: V_{DD}=-10 V, V_{GS}=-4.5V, R_G=6 Ω, I_D=-1.5 A N: V_{DD}=10 V, V_{GS}=4.5 V, R_G=6 Ω, I_D=1.5 A	-	6.7		ns
	N			-	4.1	-	
Rise time	P	t_r		-	9.7	-	
	N			-	7.6	-	
Turn-off delay time	P	$t_{d(off)}$		-	14.5	-	
	N			-	6.8	-	
Fall time	P	t_f		-	14.0	-	
	N			-	1.4	-	
Gate Charge Characteristics							
Gate to source charge	P	Q_{gs}	V_{DD}=-10 V, I_D=-1.5 A, V_{GS}=0 to -5 V	-	-0.49	-	nC
Gate to drain charge		Q_{gd}		-	-1.9	-	
Switching charge		Q_g		-	-3.0	-	
Gate plateau voltage		$V_{plateau}$		-	-1.9	-	
Gate to source charge	N	Q_{gs}	V_{DD}=10 V, I_D=1.5 A, V_{GS}=0 to 4.5 V	-	0.24	-	
Gate to drain charge		Q_{gd}		-	0.2	-	
Switching charge		Q_g		-	0.73	-	
Gate plateau voltage		$V_{plateau}$		-	2.2	-	

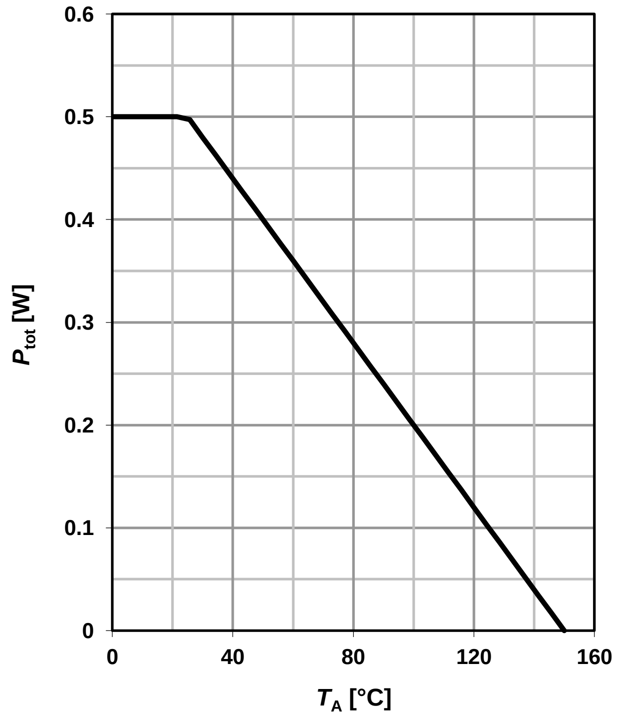
Parameter		Symbol	Conditions	Values			Unit
				min.	typ.	max.	

Reverse Diode

Parameter		Symbol	Conditions	min.	typ.	max.	Unit
Diode continuous forward current	P	I_S	T_C=25 °C	-	-	-0.5	A
	N			-	-	0.5	
Diode pulse current	P	$I_{S,pulse}$		-	-	-6	
	N			-	-	6	
Diode forward voltage	P	V_{SD}	V_{GS}=0 V, I_F=-1.5 A, T_j=25 °C	-	-0.8	-1.1	V
	N		V_{GS}=0 V, I_F=1.5 A, T_j=25 °C	-	0.8	1.1	
Reverse recovery time	P	t_{rr}	V_R=±10 V, I_F=I_S, di_F/dt=100 A/µs	-	21	-	ns
	N			-	8.4	-	
Reverse recovery charge	P	Q_{rr}		-	-3.7	-	nC
	N			-	1.7	-	

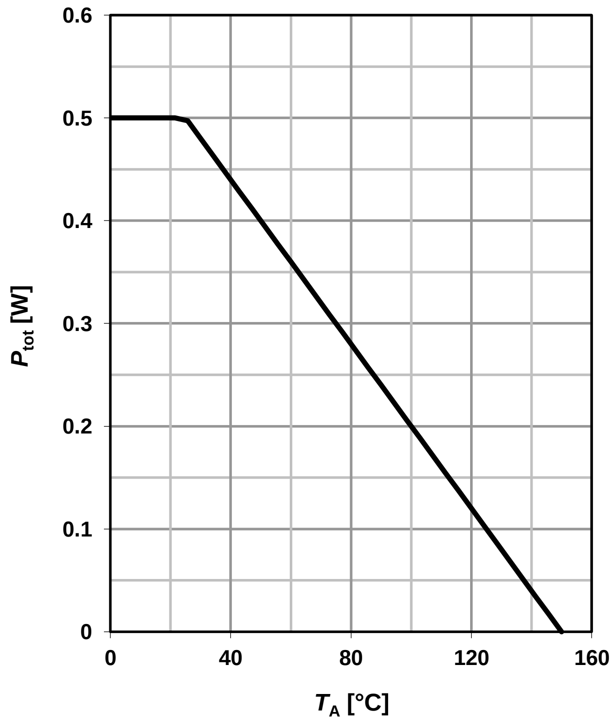
1 Power dissipation (P)

P_{tot}=f(T_A)



2 Power dissipation (N)

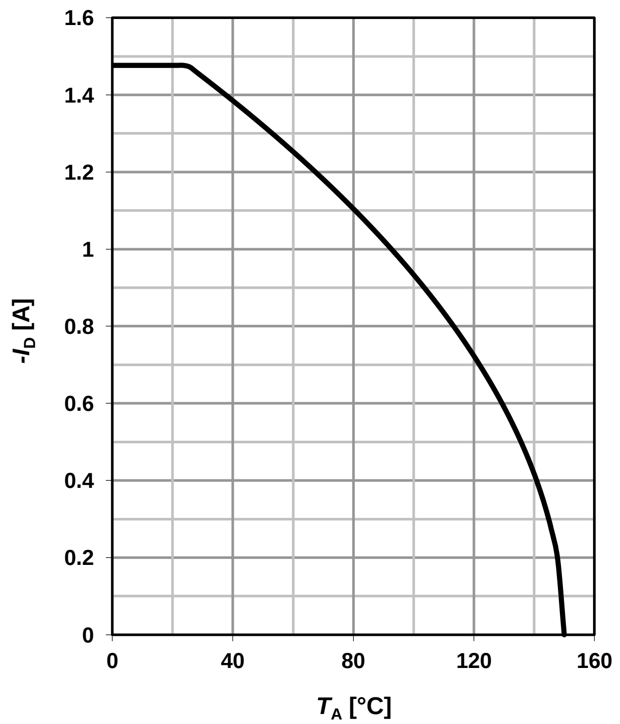
P_{tot}=f(T_A)



3 Drain current (P)

I_D=f(T_A)

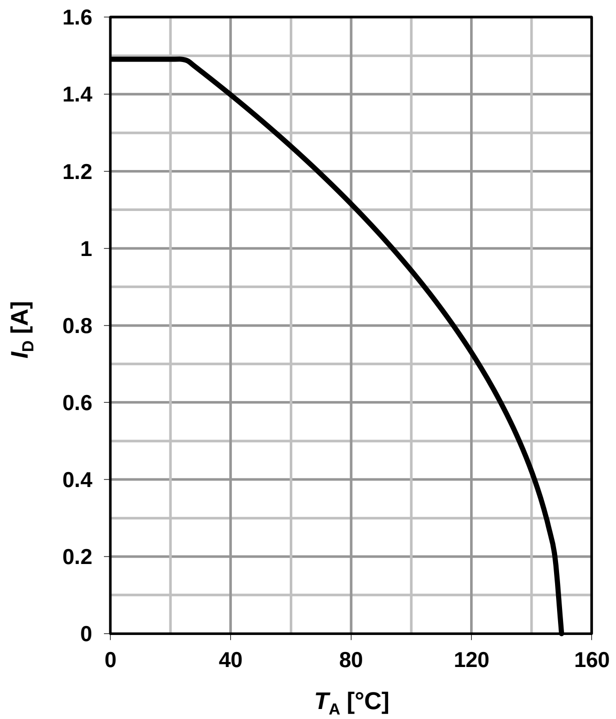
parameter: V_{GS}≤-4.5 V



4 Drain current (N)

I_D=f(T_A)

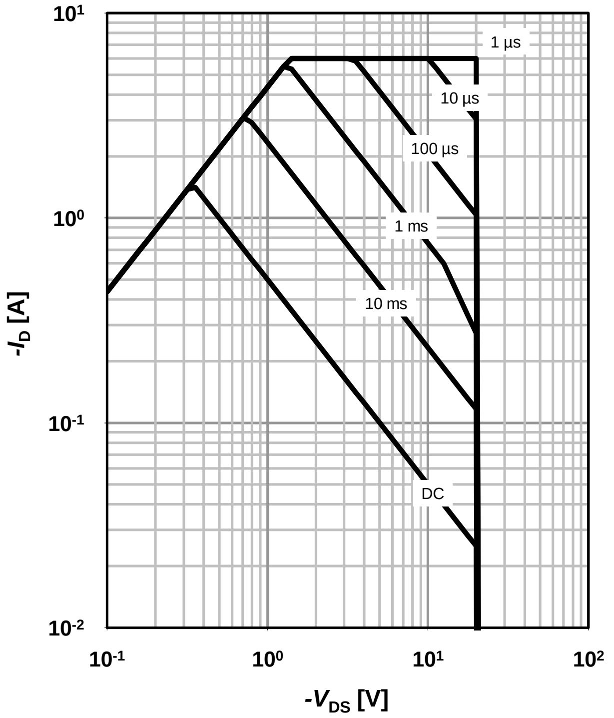
parameter: V_{GS}≥4.5 V



5 Safe operating area (P)

$I_D=f(V_{DS})$; $T_A=25$ °C; $D=0$

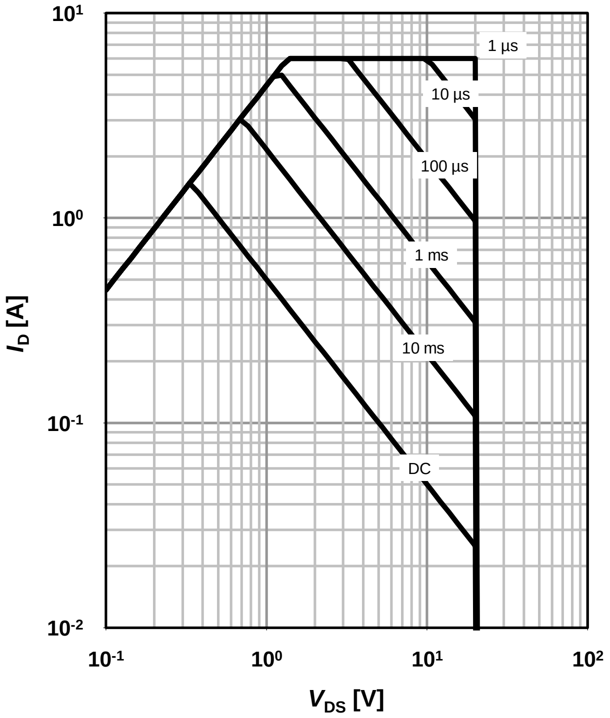
parameter: t_p



6 Safe operating area (N)

$I_D=f(V_{DS})$; $T_A=25$ °C; $D=0$

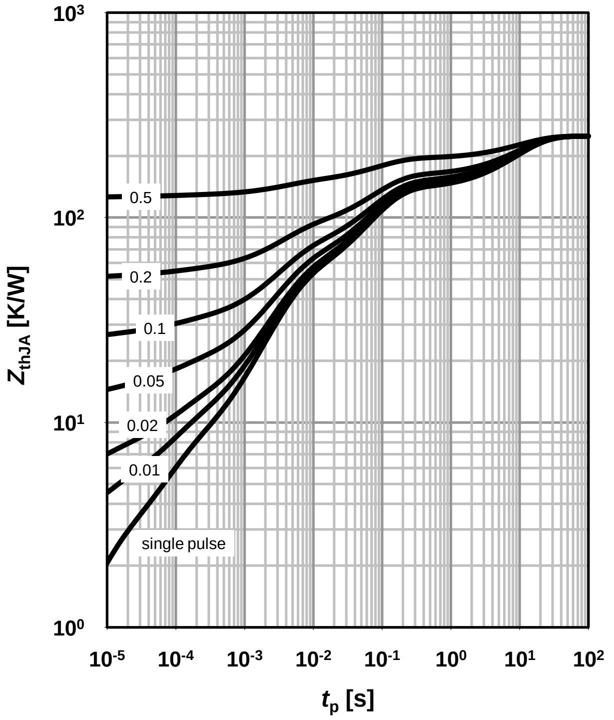
parameter: t_p



7 Max. transient thermal impedance (P)

$Z_{thJA}=f(t_p)$

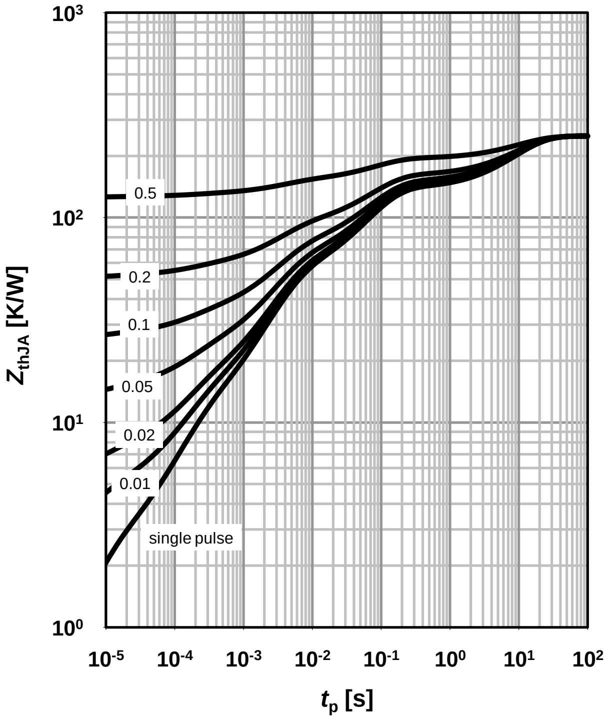
parameter: $D=t_p/T$



8 Max. transient thermal impedance (N)

$Z_{thJA}=f(t_p)$

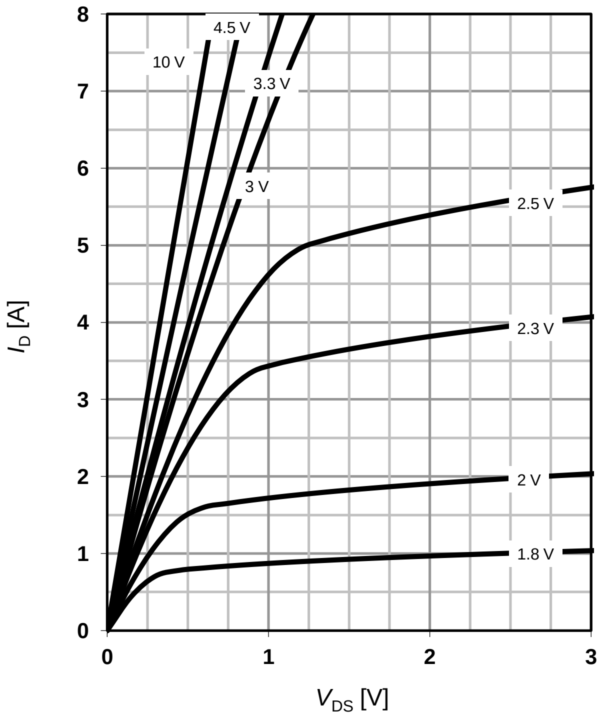
parameter: $D=t_p/T$



9 Typ. output characteristics (P)

I_D=f(V_{DS}); T_j=25 °C

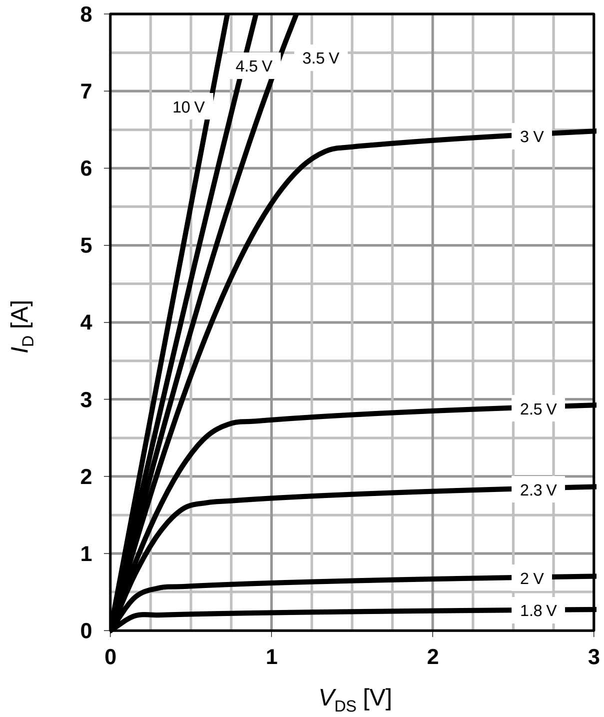
parameter: V_{GS}



10 Typ. output characteristics (N)

I_D=f(V_{DS}); T_j=25 °C

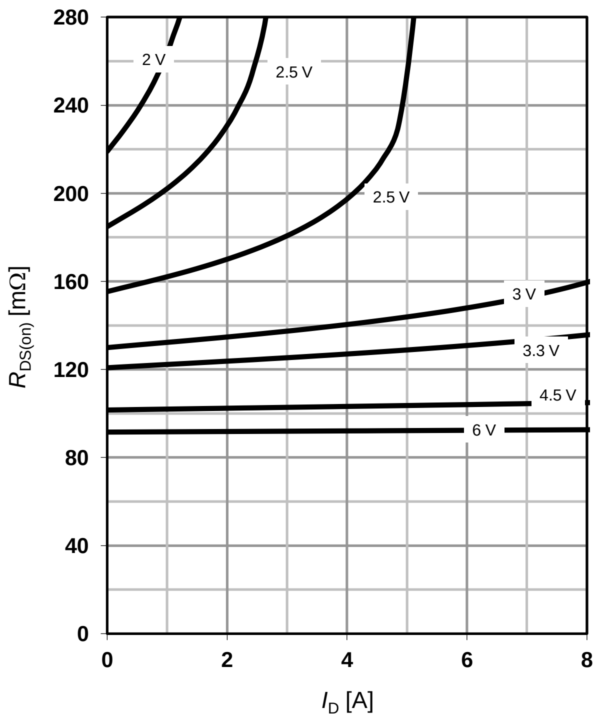
parameter: V_{GS}



11 Typ. drain-source on resistance (P)

$R_{DS(on)}$=f(I_D); T_j=25 °C

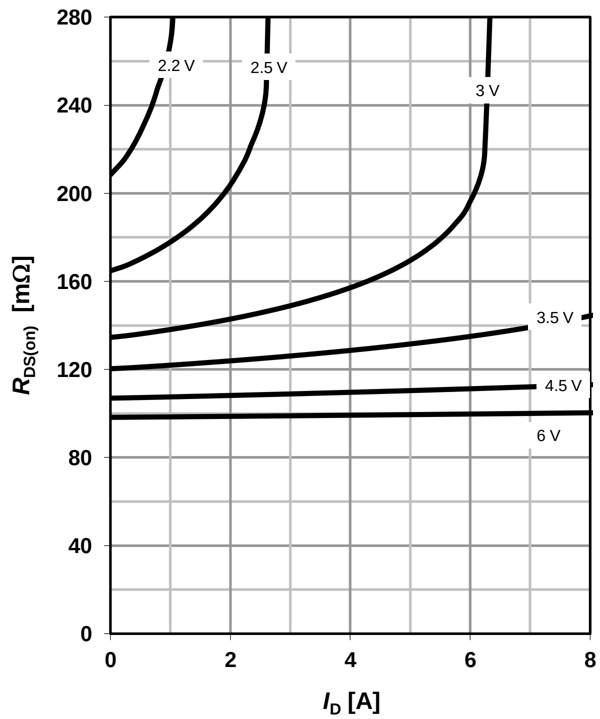
parameter: V_{GS}



12 Typ. drain-source on resistance (N)

$R_{DS(on)}$=f(I_D); T_j=25 °C

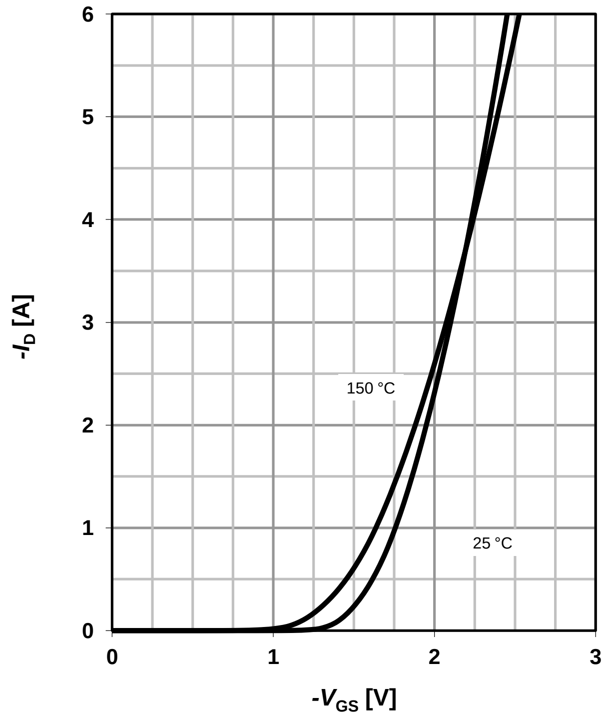
parameter: V_{GS}



13 Typ. transfer characteristics (P)

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

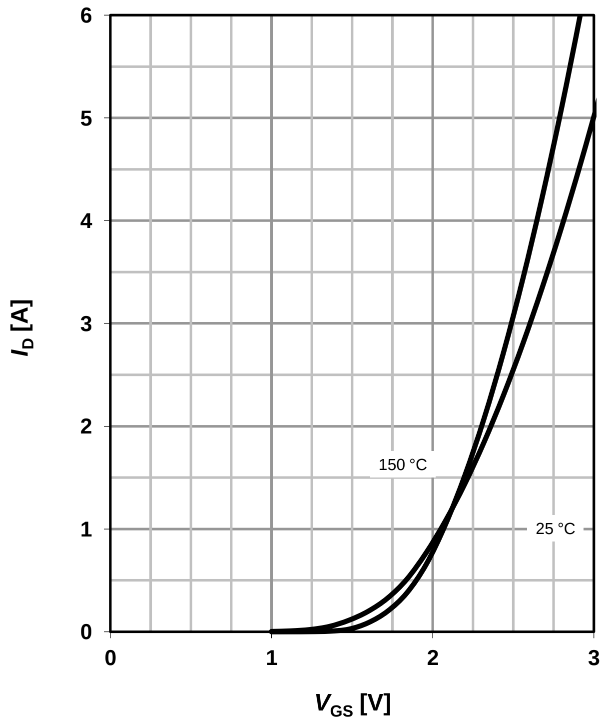
parameter: T_j



14 Typ. transfer characteristics (N)

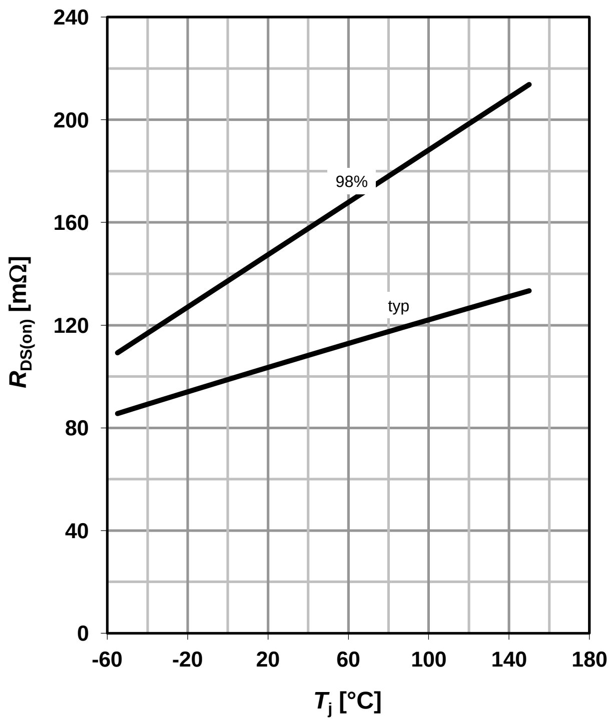
I_D=f(V_{GS}); $|V_{DS}|$>2 | I_D | $R_{DS(on)max}$

parameter: T_j



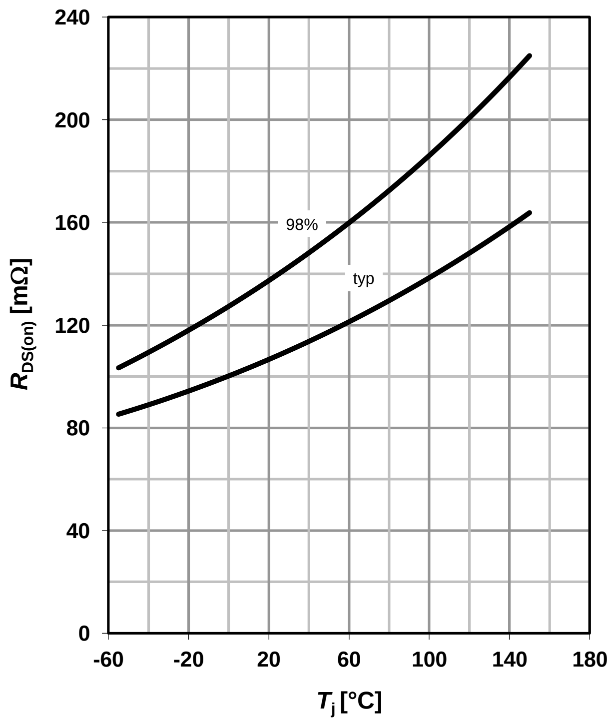
15 Drain-source on-state resistance (P)

$R_{DS(on)}$=f(T_j); I_D=-1.5 A; V_{GS}=-4.5 V



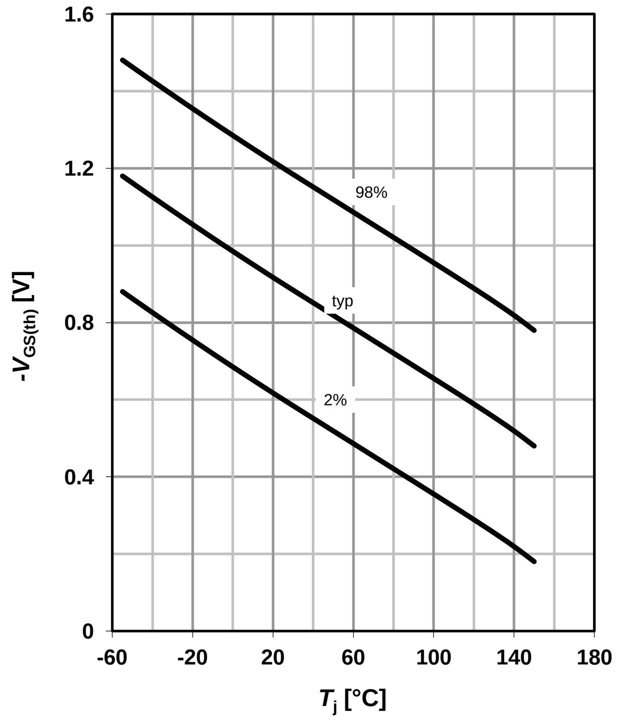
16 Drain-source on-state resistance (N)

$R_{DS(on)}$=f(T_j); I_D=1.5 A; V_{GS}=4.5 V



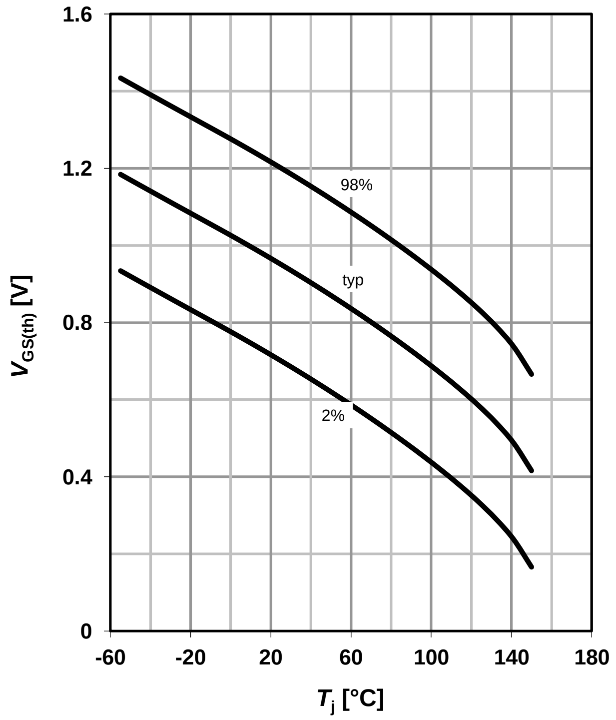
17 Typ. gate threshold voltage (P)

$V_{GS(th)}$=f(T_j); V_{GS}=V_{DS}; I_D=-11 µA



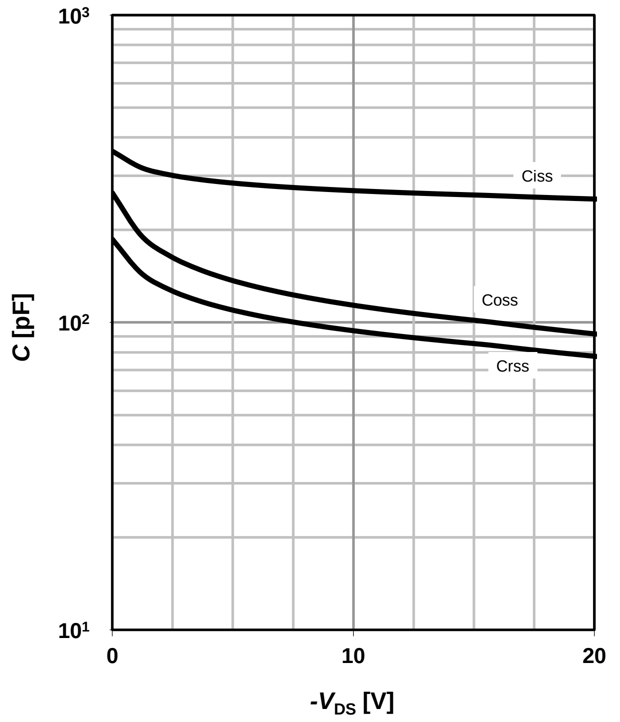
18 Typ. gate threshold voltage (N)

$V_{GS(th)}$=f(T_j); V_{GS}=V_{DS}; I_D=3.7 µA



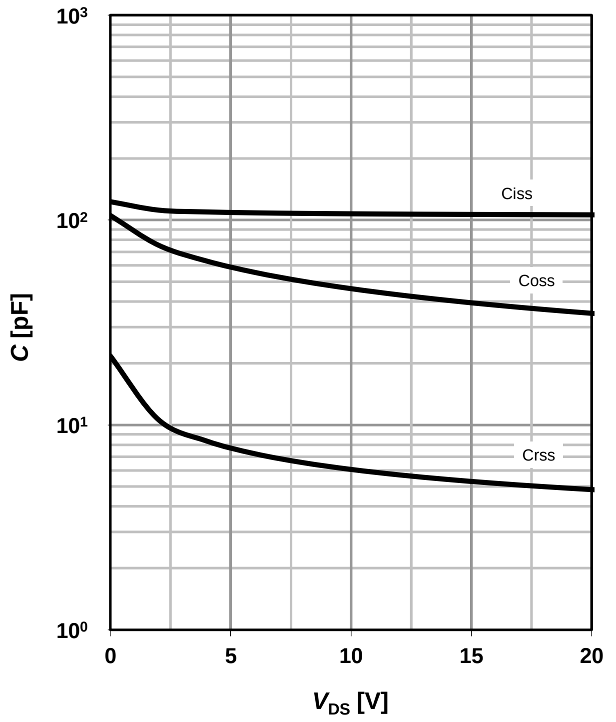
19 Typ. capacitances (P)

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



20 Typ. capacitances (N)

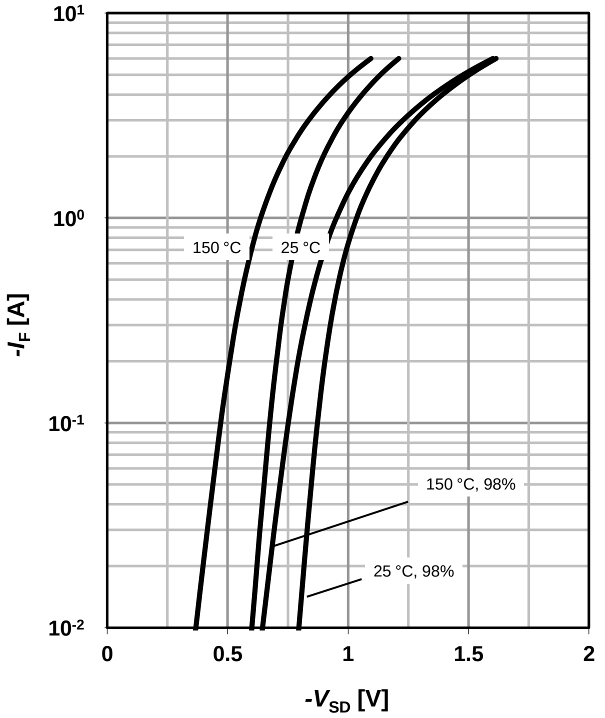
C=f(V_{DS}); V_{GS}=0 V; f=1 MHz



21 Forward characteristics of reverse diode (P)

I_F=f(V_{SD})

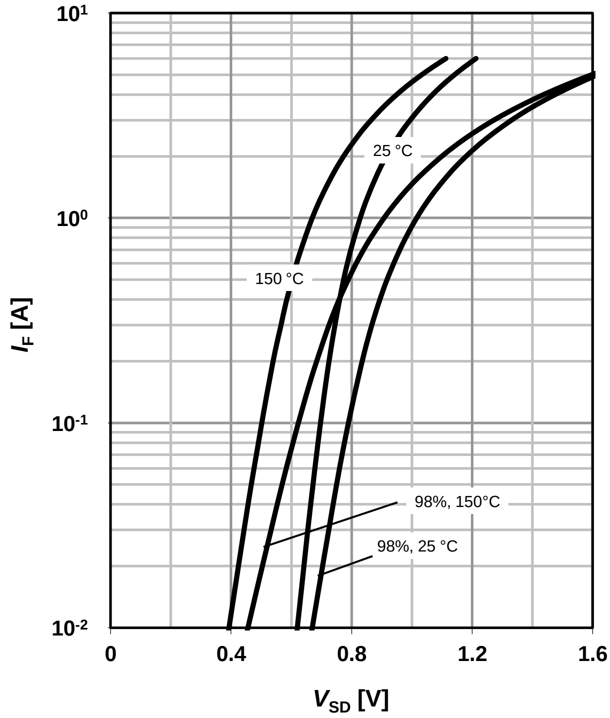
parameter: T_j



22 Forward characteristics of reverse diode (N)

I_F=f(V_{SD})

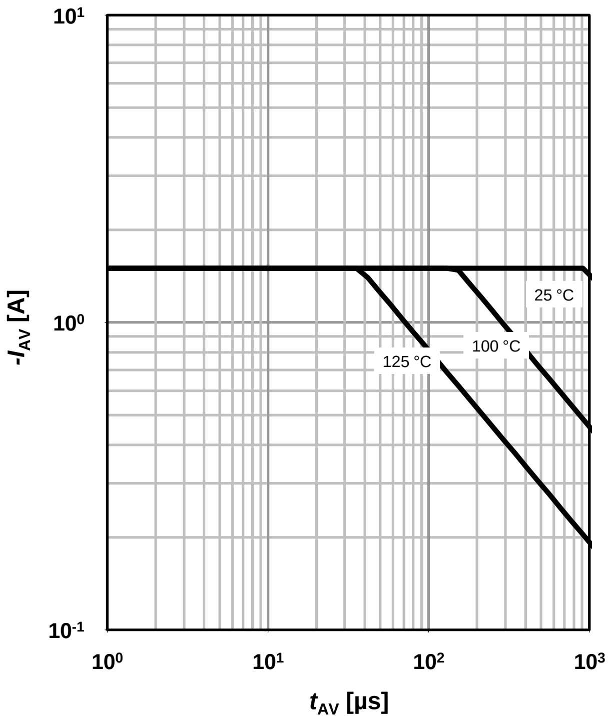
parameter: T_j



23 Avalanche characteristics (P)

I_{AS}=f(t_{AV}); R_{GS}=25 Ω

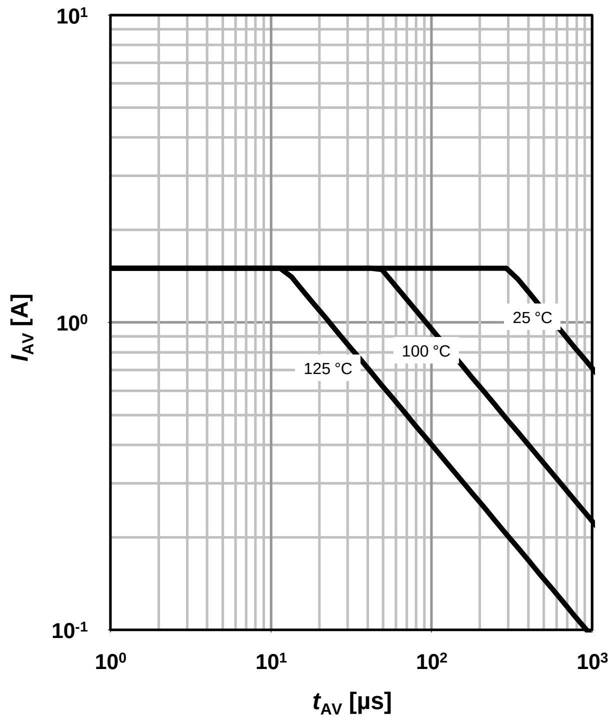
parameter: $T_{j(start)}$



24 Avalanche characteristics (N)

I_{AS}=f(t_{AV}); R_{GS}=25 Ω

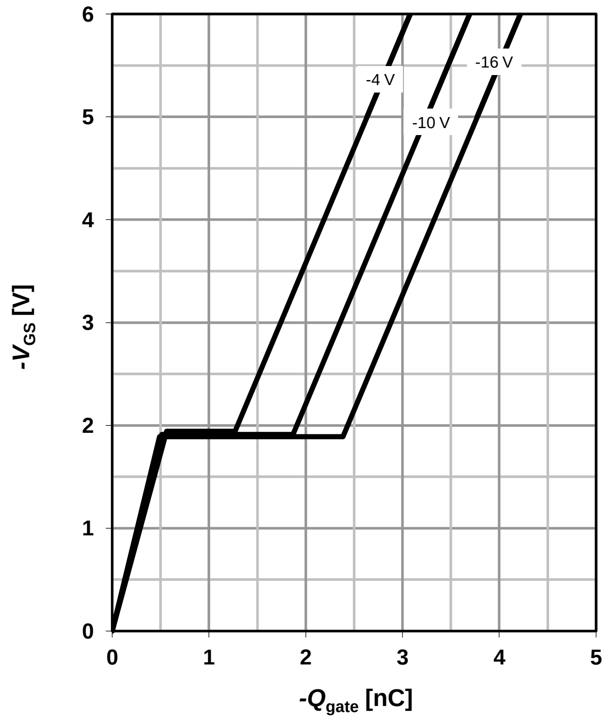
parameter: $T_{j(start)}$



25 Typ. gate charge (P)

V_{GS}=f(Q_{gate}); I_D=-1.5 A pulsed

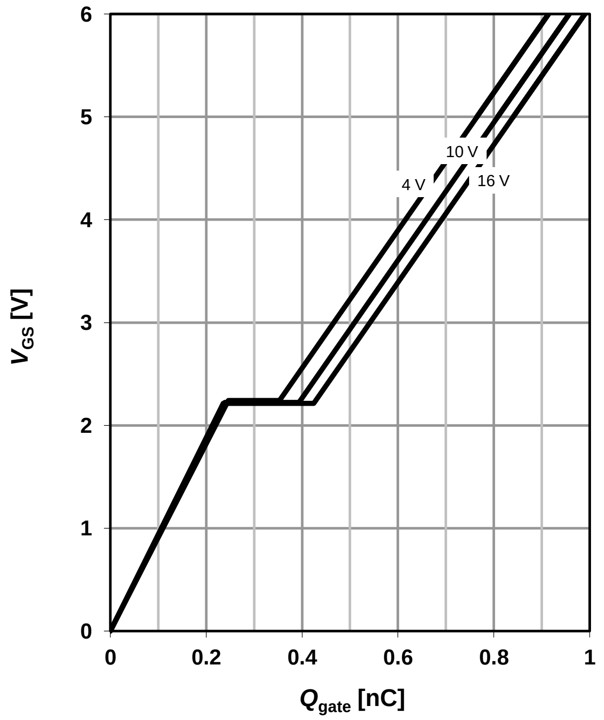
parameter: V_{DD}



26 Typ. gate charge (N)

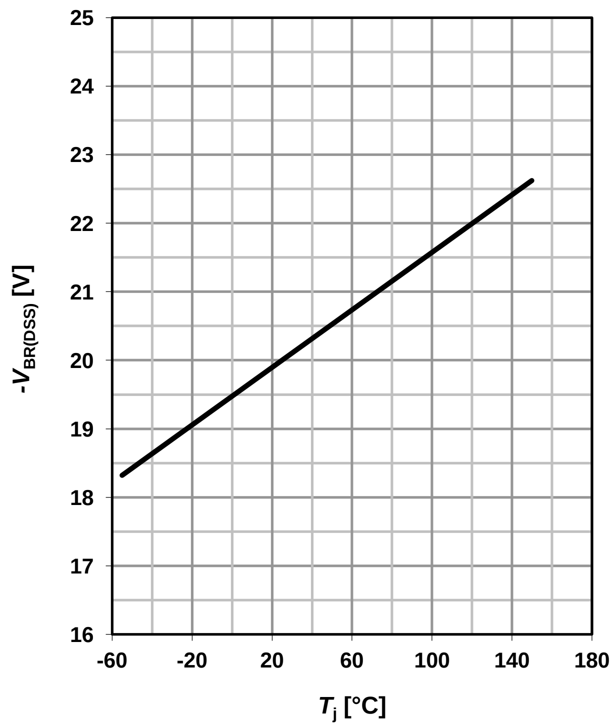
V_{GS}=f(Q_{gate}); I_D=1.5 A pulsed

parameter: V_{DD}



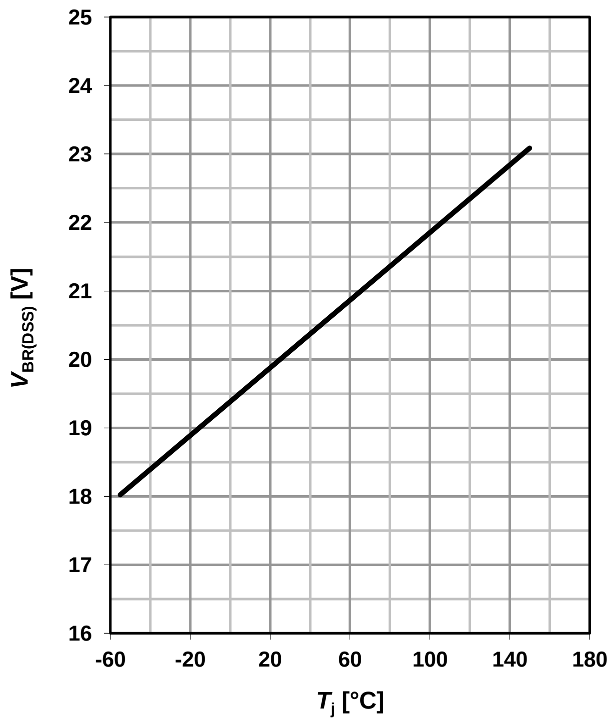
27 Drain-source breakdown voltage (P)

$V_{BR(DSS)}$=f(T_j); I_D=-250 µA



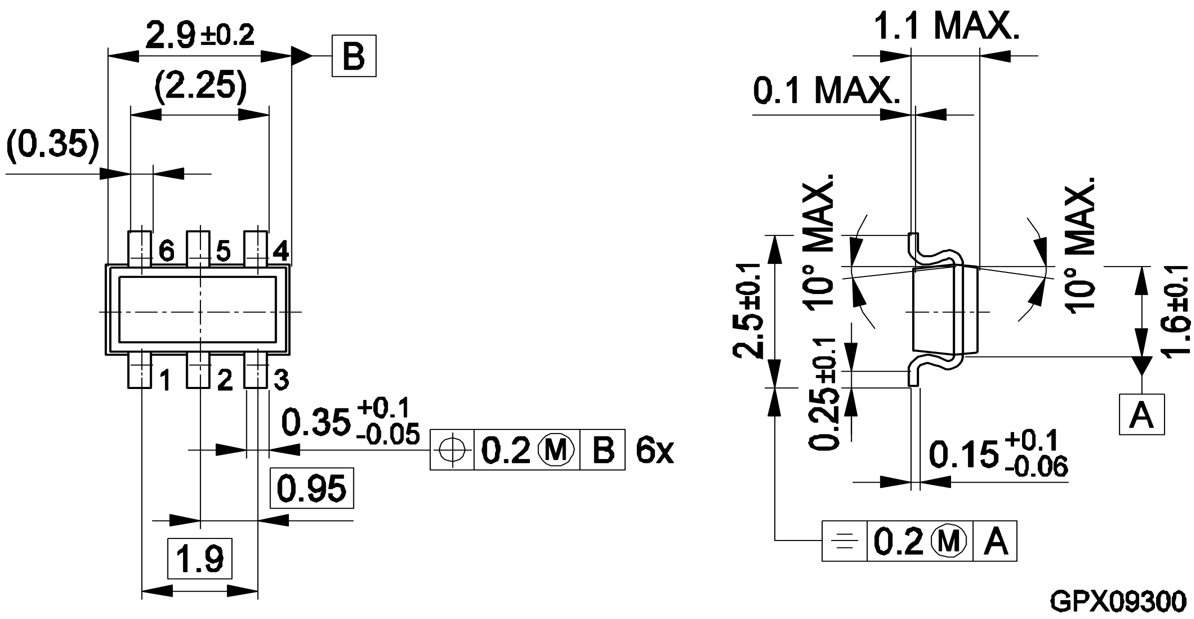
28 Drain-source breakdown voltage (N)

$V_{BR(DSS)}$=f(T_j); I_D=250 µA

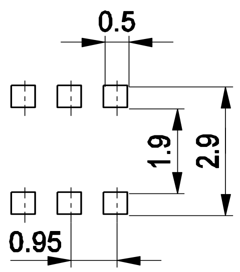


TSOP6

Package Outline:



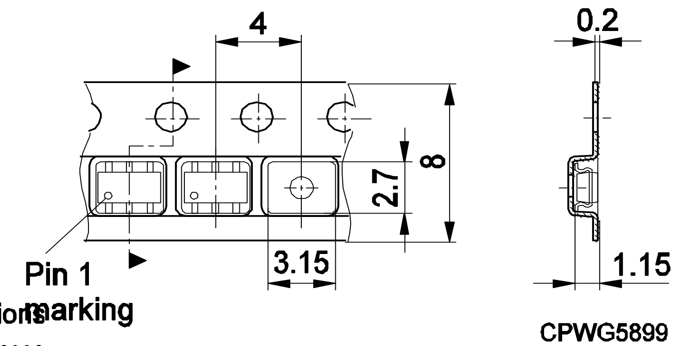
Footprint:



Remark: Wave soldering possible dep. on customers process conditions

HLG09283

Packaging:



Dimensions in mm

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

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Компания «ЭлектроПласт» предлагает заключение долгосрочных отношений при поставках импортных электронных компонентов на взаимовыгодных условиях!

Наши преимущества:

- Оперативные поставки широкого спектра электронных компонентов отечественного и импортного производства напрямую от производителей и с крупнейших мировых складов;
- Поставка более 17-ти миллионов наименований электронных компонентов;
- Поставка сложных, дефицитных, либо снятых с производства позиций;
- Оперативные сроки поставки под заказ (от 5 рабочих дней);
- Экспресс доставка в любую точку России;
- Техническая поддержка проекта, помощь в подборе аналогов, поставка прототипов;
- Система менеджмента качества сертифицирована по Международному стандарту ISO 9001;
- Лицензия ФСБ на осуществление работ с использованием сведений, составляющих государственную тайну;
- Поставка специализированных компонентов (Xilinx, Altera, Analog Devices, Intersil, Interpoint, Microsemi, Aeroflex, Peregrine, Syfer, Eurofarad, Texas Instrument, Miteq, Cobham, E2V, MA-COM, Hittite, Mini-Circuits,General Dynamics и др.);

Помимо этого, одним из направлений компании «ЭлектроПласт» является направление «Источники питания». Мы предлагаем Вам помощь Конструкторского отдела:

- Подбор оптимального решения, техническое обоснование при выборе компонента;
- Подбор аналогов;
- Консультации по применению компонента;
- Поставка образцов и прототипов;
- Техническая поддержка проекта;
- Защита от снятия компонента с производства.

Как с нами связаться

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