Mosfet

Metal Oxide Semiconductor Field Effect Transistor

OptiMOS™ Small-Signal-Transistor, 100V

BSL373SN

Data Sheet

Rev. 2.0
Final

Industrial & Multimarket

OptiMOS™ Small-Signal-Transistor

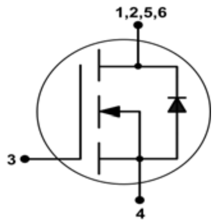
Product Summary

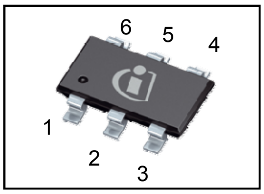
V_{DS}	100	V
$R_{DS(on),max}$	0.23	Ω
I_D	2.0	A

Features

- N-channel
- Enhancement mode
- Avalanche rated
- Qualified according to AEC Q101
- RoHS compliant
- Halogen-free acording to IEC61249-2-21

TSOP6





Type	Package	Tape and Reel Info	Marking	Halogen Free	Packing
BSL373SN	TSOP6	H6327: 3000 pcs/ reel	sPY	Yes	Non dry

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

Parameter	Symbol	Conditions	Value	Unit
Continuous drain current	I_D	T_A=25 °C	2.0	A
		T_A=70 °C	1.6	
Pulsed drain current	$I_{D,pulse}$	T_A=25 °C	8.0	
Avalanche energy, single pulse	E_{AS}	I_D=2 A, R_{GS}=25 Ω	33	mJ
Reverse diode dv/dt	dv/dt	I_D=2 A, V_{DS}=50 V, di/dt=200 A/µs, $T_{j,max}$=150 °C	6	kV/µs
Gate source voltage	V_{GS}		±20	V
Power dissipation[1)]	P_{tot}	T_A=25 °C	2.0	W
Operating and storage temperature	T_j, T_{stg}		-55 ... 150	°C
ESD Class		JESD22-A114 -HBM	0 (<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}		-	-	50	K/W
Thermal resistance junction - ambient	R_{thJA}	minimal footprint	-	-	230	
		6 cm^2 cooling area[1)]	-	-	62.5	

Electrical characteristics, at T_j=25 °C, unless otherwise specified

Parameter	Symbol	Conditions	min.	typ.	max.	Unit
Static characteristics						
Drain-source breakdown voltage	$V_{(BR)DSS}$	V_{GS}=0 V, I_D=250 µA	100	-	-	V
Gate threshold voltage	$V_{GS(th)}$	V_{DS}=Vgs V, I_D=218 µA	2.1	3.0	4.0	
Drain-source leakage current	I_{DSS}	V_{DS}=100 V, V_{GS}=0 V, T_j=25 °C	-	-	0.02	µA
		V_{DS}=100 V, V_{GS}=0 V, T_j=150 °C	-	-	10	
Gate-source leakage current	I_{GSS}	V_{GS}=20 V, V_{DS}=0 V	-	-	10	nA
Drain-source on-state resistance	$R_{DS(on)}$	V_{GS}=10 V, I_D=2 A	-	175	230	mΩ
Transconductance	g_{fs}	$\|V_{DS}\|>2\|I_D\|R_{DS(on)max}$, I_D=1.6 A		3.35	-	S

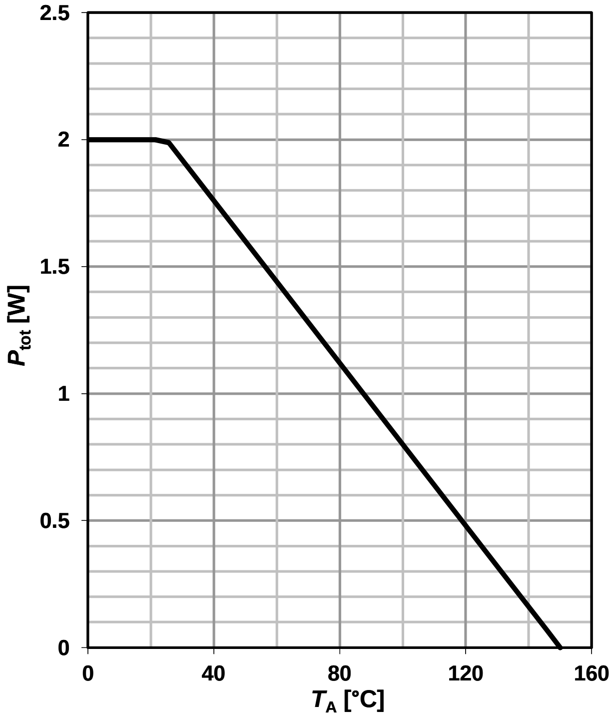
[1)] Device on 40mm x 40mm x 1.5mm epoxy PCB FR4 with 6cm² (one layer, 70µm thick) copper area for drain connection. PCB is vertical in still air. (t < 5 sec.)

Parameter	Symbol	Conditions	Values			Unit
			min.	typ.	max.	
Dynamic characteristics[2)]						
Input capacitance	C_{iss}	V_{GS}=0 V, V_{DS}=25 V, f=1 MHz	-	199	265	pF
Output capacitance	C_{oss}		-	36	48	
Reverse transfer capacitance	C_{rss}		-	14	21	
Turn-on delay time	$t_{d(on)}$	V_{DD}=50 V, V_{GS}=10 V, I_D=2 A, $R_{G,ext}$=6 Ω	-	4.7	7.1	ns
Rise time	t_r		-	5.9	8.9	
Turn-off delay time	$t_{d(off)}$		-	20.6	30.9	
Fall time	t_f		-	13.6	20.4	
Gate Charge Characteristics[2)]						
Gate to source charge	Q_{gs}	V_{DD}=50 V, I_D=2 A, V_{GS}=0 to 10 V	-	0.8	1.1	nC
Gate to drain charge	Q_{gd}		-	2.7	4.0	
Gate charge total	Q_g		-	6.2	9.3	
Gate plateau voltage	$V_{plateau}$		-	4.1	-	V
Reverse Diode						
Diode continous forward current	I_S	T_A=25 °C	-	-	2.0	A
Diode pulse current	$I_{S,pulse}$		-	-	7.9	
Diode forward voltage	V_{SD}	V_{GS}=0 V, I_F=2 A, T_j=25 °C	-	0.8	1.1	V
Reverse recovery time[2)]	t_{rr}	V_R=50 V, I_F=2 A, di_F/dt=200 A/µs	-	27	41	ns
Reverse recovery charge[2)]	Q_{rr}		-	60	90	nC

[2)] Defined by design. Not subjected to production test

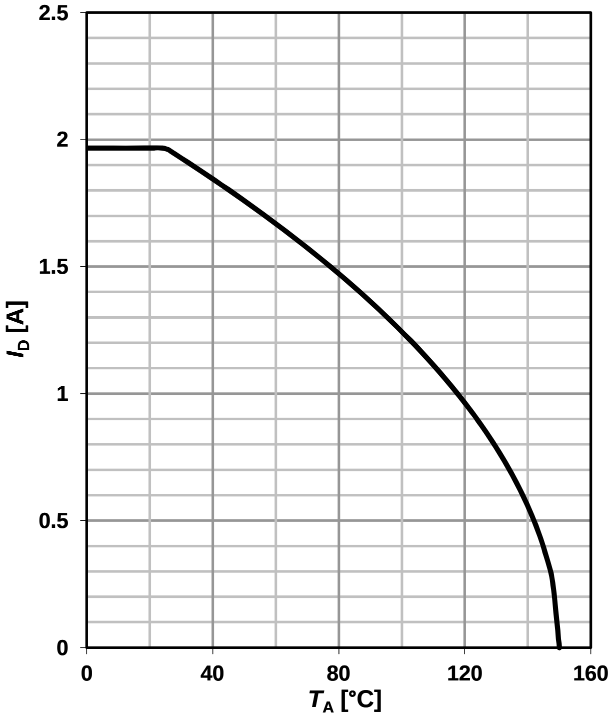
1 Power dissipation

P_{tot}=f(T_A)



2 Drain current

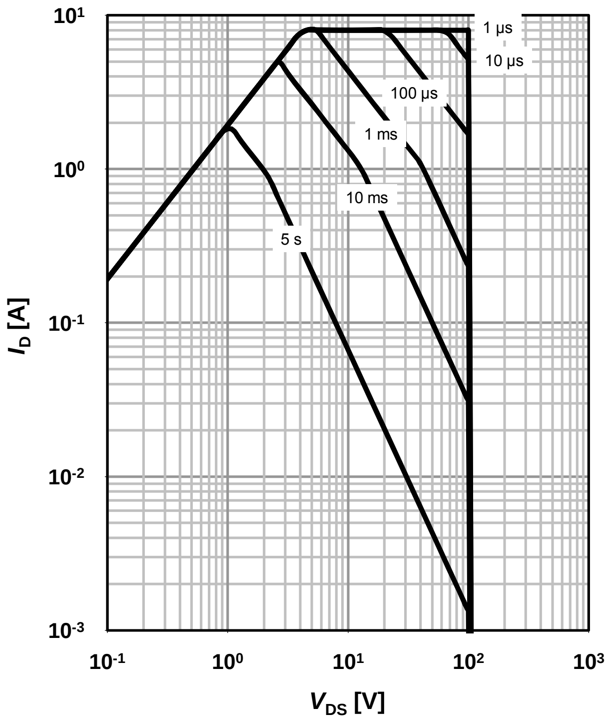
I_D=f(T_A); V_{GS}≥10 V



3 Safe operating area

I_D=f(V_{DS}); T_A=25 °C; D=0

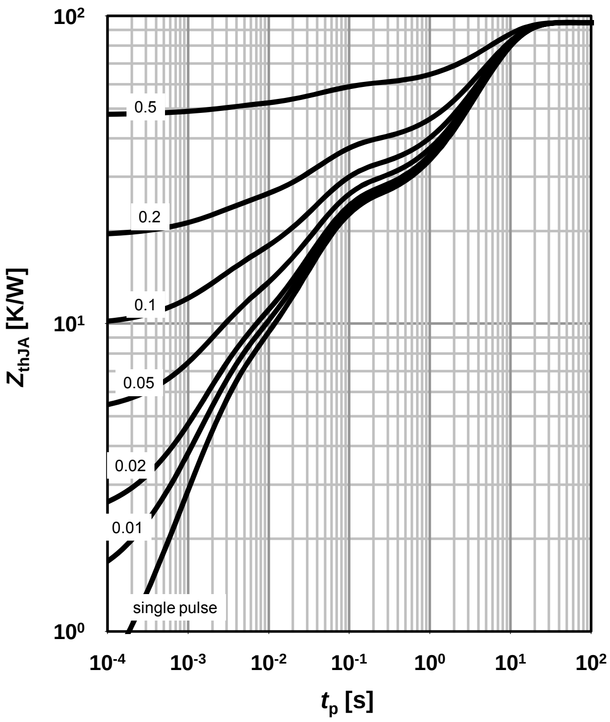
parameter: t_p



4 Max. transient thermal impedance

Z_{thJA}=f(t_p)

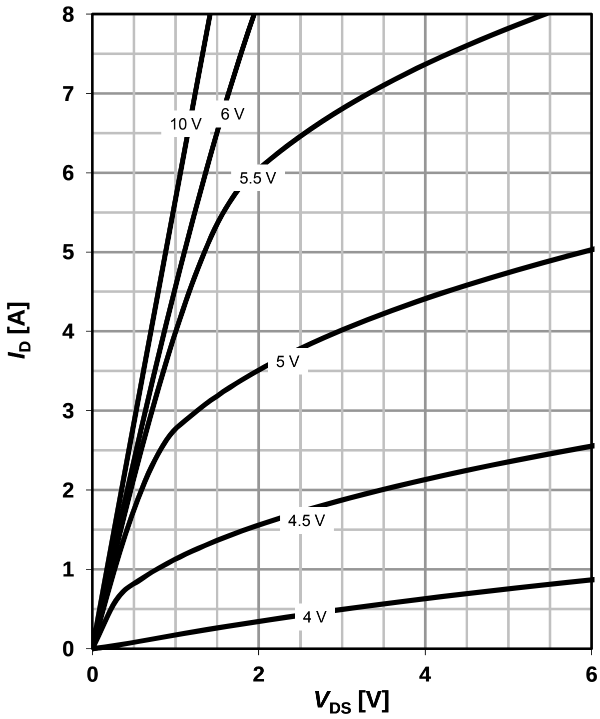
parameter: D=t_p/T



5 Typ. output characteristics

I_D=f(V_{DS}); T_j=25 °C

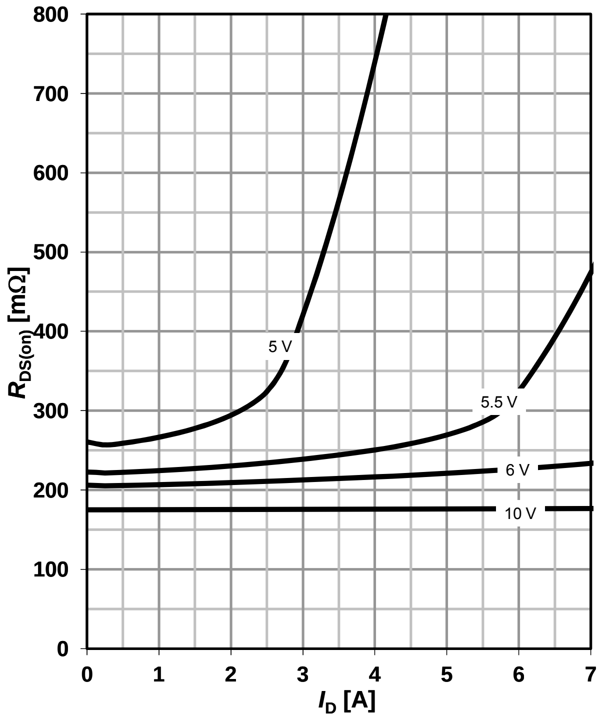
parameter: V_{GS}



6 Typ. drain-source on resistance

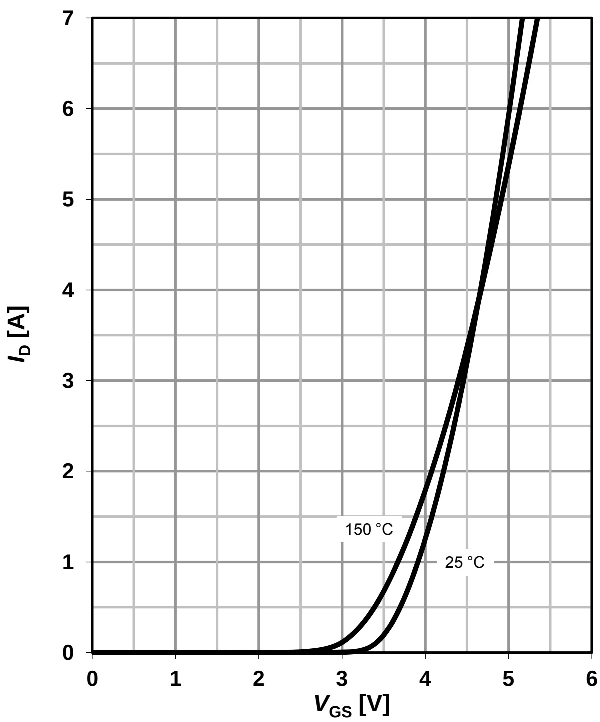
$R_{DS(on)}$=f(I_D); T_j=25 °C

parameter: V_{GS}



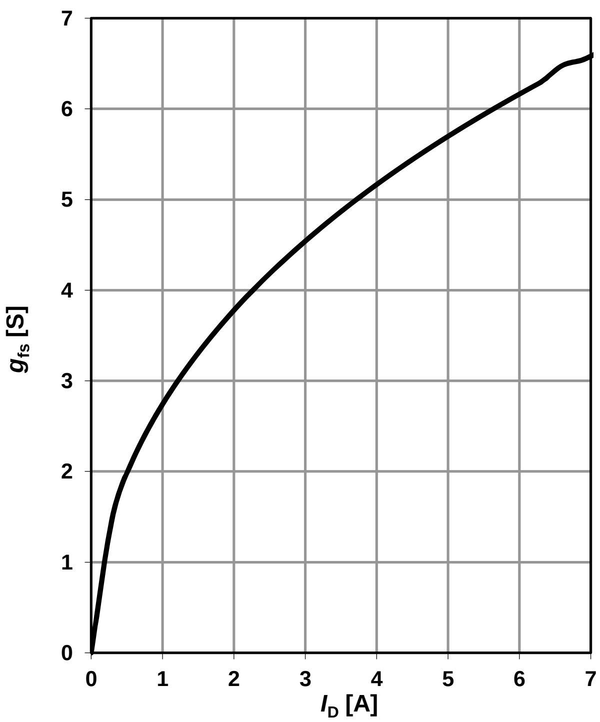
7 Typ. transfer characteristics

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



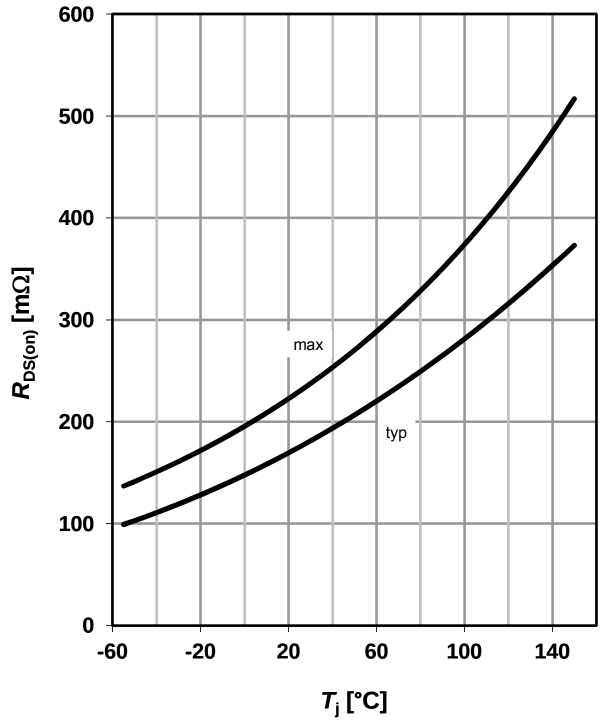
8 Typ. forward transconductance

g_{fs}=f(I_D); T_j=25 °C



9 Drain-source on-state resistance

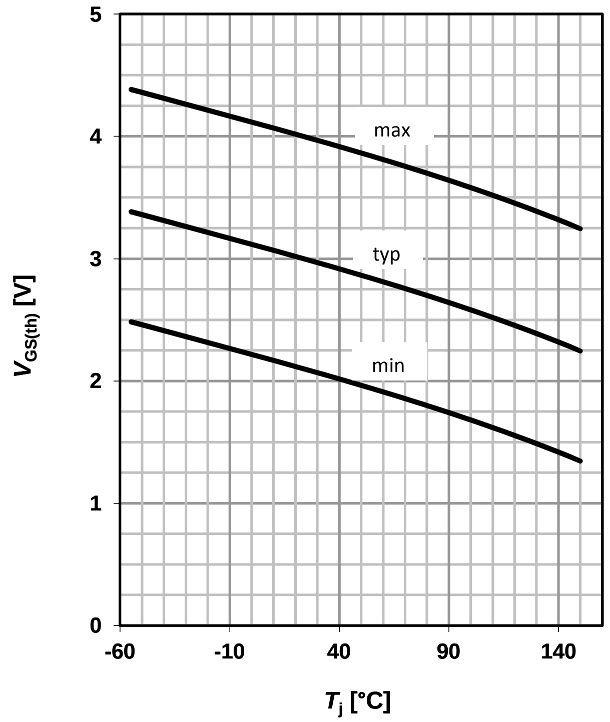
$R_{DS(on)}$=f(T_j); I_D=2 A; V_{GS}=10 V



10 Typ. gate threshold voltage

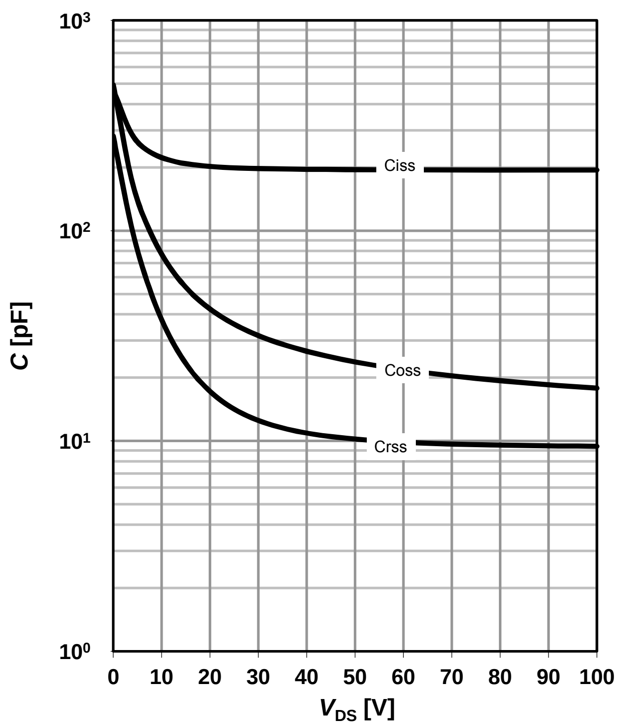
$V_{GS(th)}$=f(T_j); V_{DS}=V_{GS}; I_D=218 µA

parameter: I_D



11 Typ. capacitances

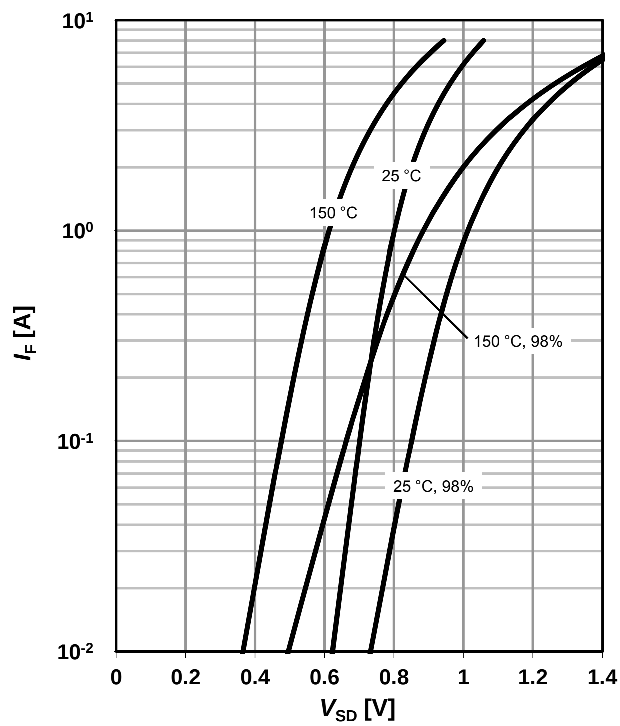
C=f(V_{DS}); V_{GS}=0 V; f=1 MHz; T_j=25°C



12 Forward characteristics of reverse diode

I_F=f(V_{SD})

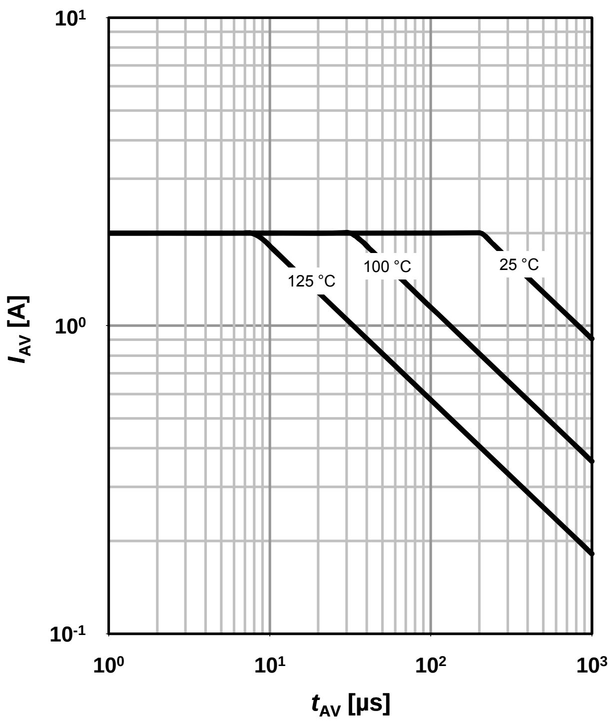
parameter: T_j



13 Avalanche characteristics

$I_{AS}=f(t_{AV})$; $R_{GS}=25\ \Omega$

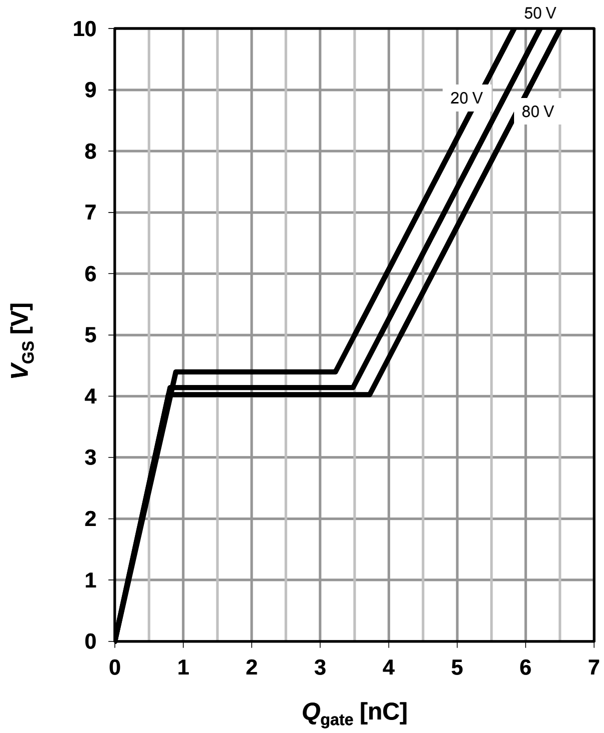
parameter: $T_{j(start)}$



14 Typ. gate charge

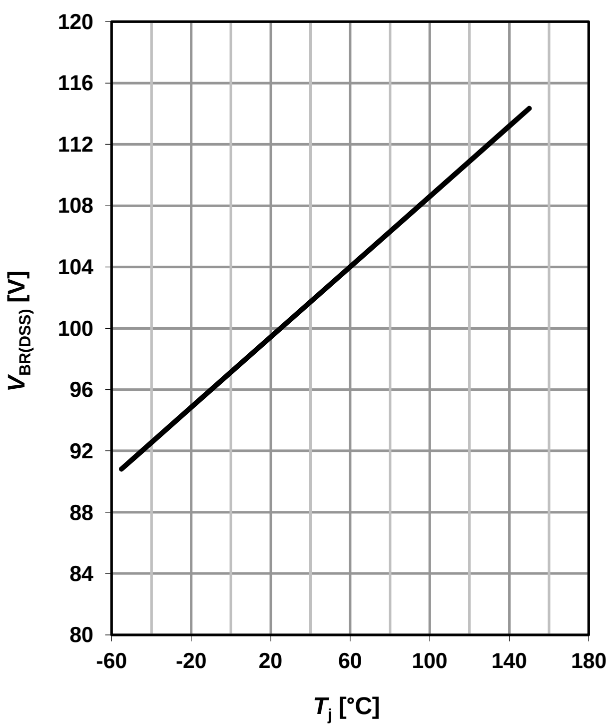
$V_{GS}=f(Q_{gate})$; $I_D=2$ A pulsed

parameter: V_{DD}

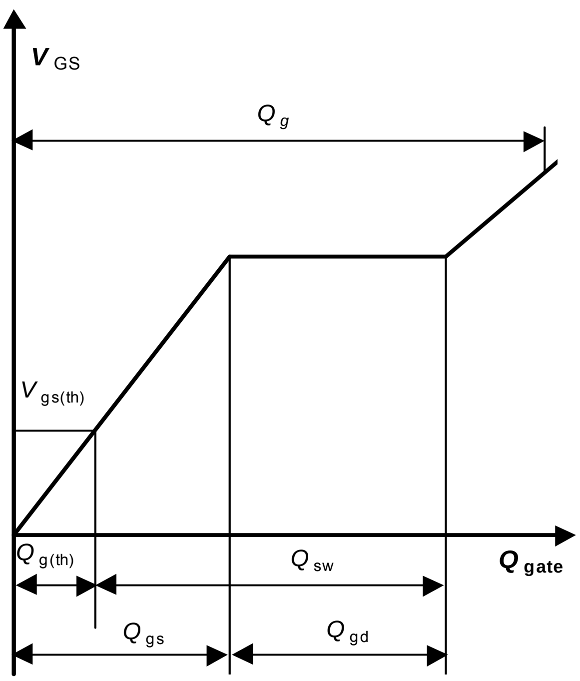


15 Drain-source breakdown voltage

$V_{BR(DSS)}=f(T_j)$; $I_D=250$ µA

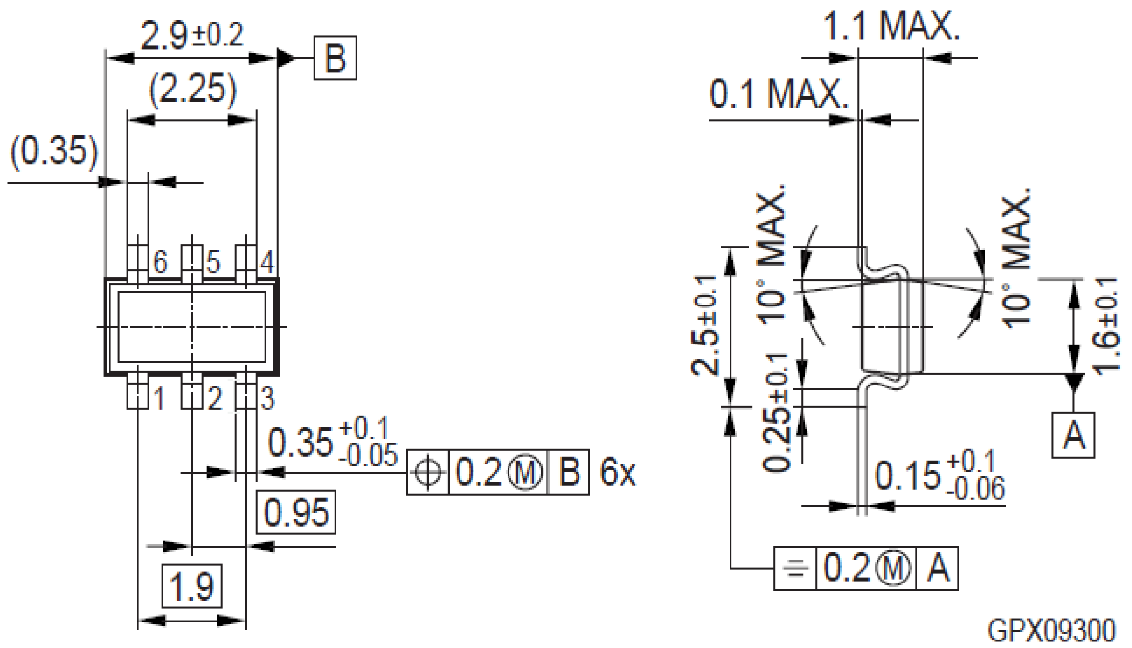


16 Gate charge waveforms

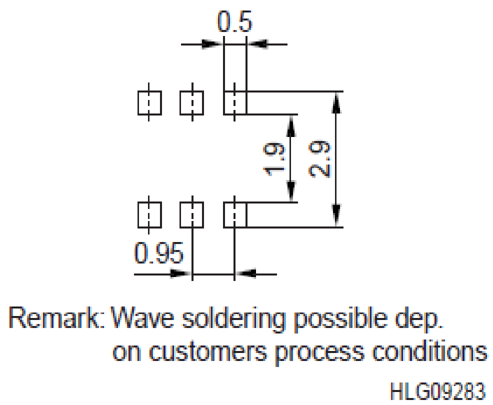


TSOP6

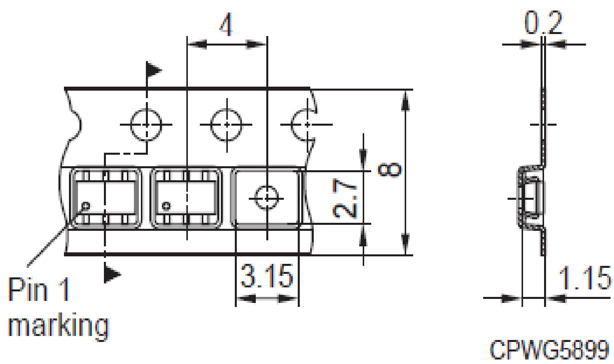
Package Outline:



Footprint:



Packaging:



Dimensions in mm

Note: For symmetric types there is no defined Pin 1 orientation in the reel.

Revision History

BSL373SN

Revision: 2014-10-22, Rev. 2.0

Previous Revision

Revision	Date	Subjects (major changes since last revision)
2.0	2014-10-22	Release of final version

We Listen to Your Comments
Any information within this document that you feel is wrong, unclear or missing at all? Your feedback will help us to continuously improve the quality of this document. Please send your proposal (including a reference to this document) to:
erratum@infineon.com

Published by
Infineon Technologies AG
81726 München, Germany

Legal Disclaimer
The information given in this document shall in no event be regarded as a guarantee of conditions or characteristics. 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 the nearest Infineon Technologies Office.
The Infineon Technologies component described in this Data Sheet may be used in life-support devices or systems and/or automotive, aviation and aerospace applications or systems only 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, automotive, aviation and aerospace 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.