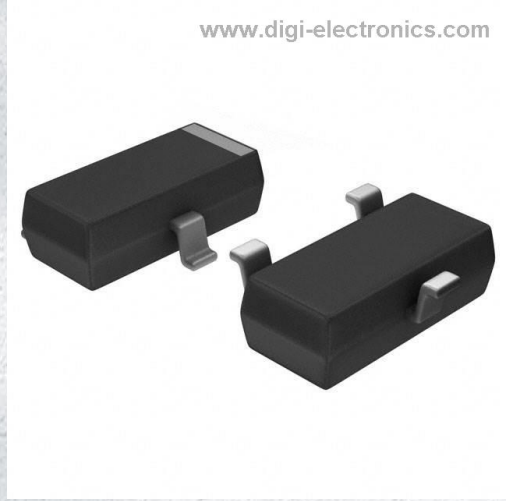
# BSS131E6327 Datasheet

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| | |
|---|---|
| DiGi Electronics Part Number | BSS131E6327-DG |
| Manufacturer | Infineon Technologies |
| Manufacturer Product Number | BSS131E6327 |
| Description | MOSFET N-CH 240V 110MA SOT23-3 |
| Detailed Description | N-Channel 240 V 110mA (Ta) 360mW (Ta) Surface Mount PG-SOT23 |

Tel: +00 852-30501935

RFQ Email: Info@DiGi-Electronics.com

## Purchase and inquiry

| Manufacturer Product Number: | Manufacturer: |
| --- | --- |
| BSS131E6327 | Infineon Technologies |
| Series: | Product Status: |
| SIPMOS® | Obsolete |
| FET Type: | Technology: |
| N-Channel | MOSFET (Metal Oxide) |
| Drain to Source Voltage (Vdss): | Current - Continuous Drain (Id) @ 25°C: |
| 240 V | 110mA (Ta) |
| Drive Voltage (Max Rds On, Min Rds On): | Rds On (Max) @ Id, Vgs: |
| 4.5V, 10V | 14Ohm @ 100mA, 10V |
| Vgs(th) (Max) @ Id: | Gate Charge (Qg) (Max) @ Vgs: |
| 1.8V @ 56µA | 3.1 nC @ 10 V |
| Vgs (Max): | Input Capacitance (Ciss) (Max) @ Vds: |
| ±20V | 77 pF @ 25 V |
| FET Feature: | Power Dissipation (Max): |
| - | 360mW (Ta) |
| Operating Temperature: | Mounting Type: |
| -55°C ~ 150°C (TJ) | Surface Mount |
| Supplier Device Package: | Package / Case: |
| PG-SOT23 | TO-236-3, SC-59, SOT-23-3 |

## Environmental & Export classification

| Moisture Sensitivity Level (MSL): | REACH Status: |
| --- | --- |
| 1 (Unlimited) | REACH Unaffected |
| ECCN: | HTSUS: |
| EAR99 | 8541.21.0095 |

**BSS131**

## SIPMOS® Small-Signal-Transistor

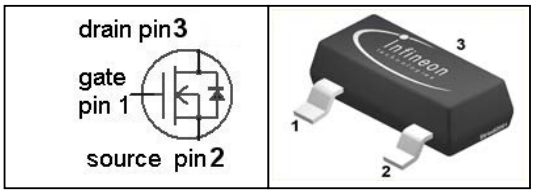
### Feature

- N-Channel
- Enhancement mode
- Logic level
- d*v*/d*t* rated
- Pb-free lead-plating; RoHS compliant
- Qualified according to AEC Q101

### Product Summary

| | | |
|---|---|---|
| $V_{DS}$ | 240 | V |
| $R_{DS(on),max}$ | 14 | Ω |
| $I_D$ | 0.1 | A |

PG-SOT-23




| Type | Package | Pb-free | Tape and Reel Information | Marking |
|---|---|---|---|---|
| BSS131 | PG-SOT23 | Yes | L6327 | SRs |

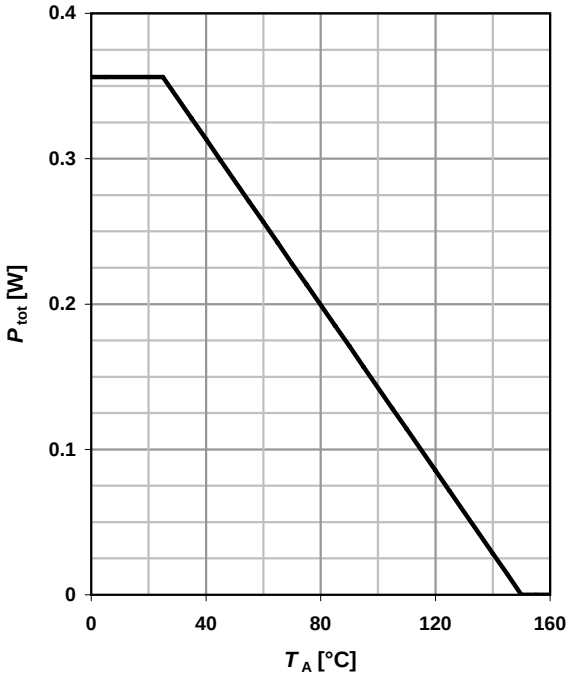
| Parameter | Symbol | Conditions | Value | Unit |
|---|---|---|---|---|
| Continuous drain current | $I_D$ | $T_A$=25 °C | 0.11 | A |
| | | $T_A$=70 °C | 0.09 | |
| Pulsed drain current | $I_{D,pulse}$ | $T_A$=25 °C | 0.4 | |
| Reverse diode d*v*/d*t* | d*v*/d*t* | $I_D$=0.1 A, $V_{DS}$=192 V, d*i*/d*t*=200 A/µs, $T_{j,max}$=150 °C | 6 | kV/µs |
| Gate source voltage | $V_{GS}$ | | ±20 | V |
| ESD sensitivity (HBM) as per MIL-STD 883 | | | Class 1a | |
| Power dissipation | $P_{tot}$ | $T_A$=25 °C | 0.36 | W |
| Operating and storage temperature | $T_j$, $T_{stg}$ | | -55 ... 150 | °C |
| IEC climatic category; DIN IEC 68-1 | | | 55/150/56 | |

| Parameter | Symbol | Conditions | Values | | | Unit |
|---|---|---|---|---|---|---|
| | | | min. | typ. | max. | |
| **Thermal characteristics** | | | | | | |
| Thermal resistance, junction - minimal footprint | $R_{thJA}$ | | - | - | 350 | K/W |
| **Electrical characteristics,** at $T_j$=25 °C, unless otherwise specified | | | | | | |
| **Static characteristics** | | | | | | |
| Drain-source breakdown voltage | $V_{(BR)DSS}$ | $V_{GS}$=0 V, $I_D$=250 µA | 240 | - | - | V |
| Gate threshold voltage | $V_{GS(th)}$ | $V_{DS}$=0 V, $I_D$=56 µA | 0.8 | 1.4 | 1.8 | |
| Drain-source leakage current | $I_{D(off)}$ | $V_{DS}$=240 V, $V_{GS}$=0 V, $T_j$=25 °C | - | - | 0.01 | µA |
| | | $V_{DS}$=240 V, $V_{GS}$=0 V, $T_j$=150 °C | - | - | 5 | |
| Gate-source leakage current | $I_{GSS}$ | $V_{GS}$=20 V, $V_{DS}$=0 V | - | - | 10 | nA |
| Drain-source on-state resistance | $R_{DS(on)}$ | $V_{GS}$=4.5 V, $I_D$=0.09 A | - | 9.07 | 20 | Ω |
| | | $V_{GS}$=10 V, $I_D$=0.1 A | - | 7.7 | 14 | |
| Transconductance | $g_{fs}$ | $\|V_{DS}\|>2\|I_D\|R_{DS(on)max}$, $I_D$=0.08 A | 0.06 | 0.13 | - | S |

| Parameter | Symbol | Conditions | Values | | | Unit |
|---|---|---|---|---|---|---|
| | | | min. | typ. | max. | |
| **Dynamic characteristics** | | | | | | |
| Input capacitance | $C_{iss}$ | $V_{GS}$=0 V, $V_{DS}$=25 V, $f$=1 MHz | - | 58 | 77 | pF |
| Output capacitance | $C_{oss}$ | | - | 7.3 | 10 | |
| Reverse transfer capacitance | $C_{rss}$ | | - | 2.8 | 4.2 | |
| Turn-on delay time | $t_{d(on)}$ | $V_{DD}$=120 V, $V_{GS}$=10 V, $I_D$=0.1 A, $R_G$=6 Ω | - | 3.3 | 5.0 | ns |
| Rise time | $t_r$ | | - | 3.1 | 4.6 | |
| Turn-off delay time | $t_{d(off)}$ | | - | 13.7 | 20 | |
| Fall time | $t_f$ | | - | 64.5 | 97 | |
| Gate Charge Characteristics | | | | | | |
| Gate to source charge | $Q_{gs}$ | $V_{DD}$=192 V, $I_D$=0.1 A, $V_{GS}$=0 to 10 V | - | 0.16 | 0.22 | nC |
| Gate to drain charge | $Q_{gd}$ | | - | 0.8 | 1.2 | |
| Gate charge total | $Q_g$ | | - | 2.1 | 3.1 | |
| Gate plateau voltage | $V_{plateau}$ | | - | 2.90 | - | V |
| **Reverse Diode** | | | | | | |
| Diode continous forward current | $I_S$ | $T_A$=25 °C | - | - | 0.11 | A |
| Diode pulse current | $I_{S,pulse}$ | | - | - | 0.43 | |
| Diode forward voltage | $V_{SD}$ | $V_{GS}$=0 V, $I_F$=0.1 A, $T_j$=25 °C | - | 0.81 | 1.2 | V |
| Reverse recovery time | $t_{rr}$ | $V_R$=120 V, $I_F$=0.1 A, $di_F/dt$=100 A/µs | - | 42.9 | 64.3 | ns |
| Reverse recovery charge | $Q_{rr}$ | | - | 22.6 | 34 | nC |

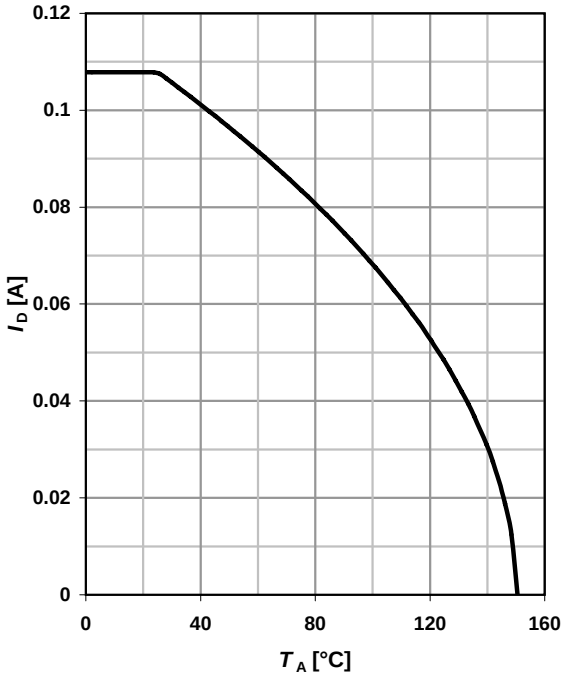
## 1 Power dissipation

$P_{tot}=f(T_A)$




## 2 Drain current

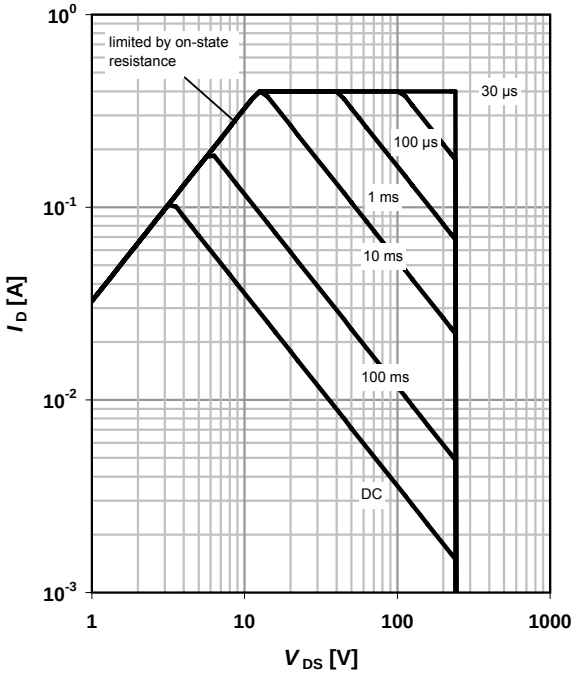
$I_D=f(T_A)$; $V_{GS}\geq 10$ V




## 3 Safe operating area

$I_D=f(V_{DS})$; $T_A=25$ °C; $D=0$

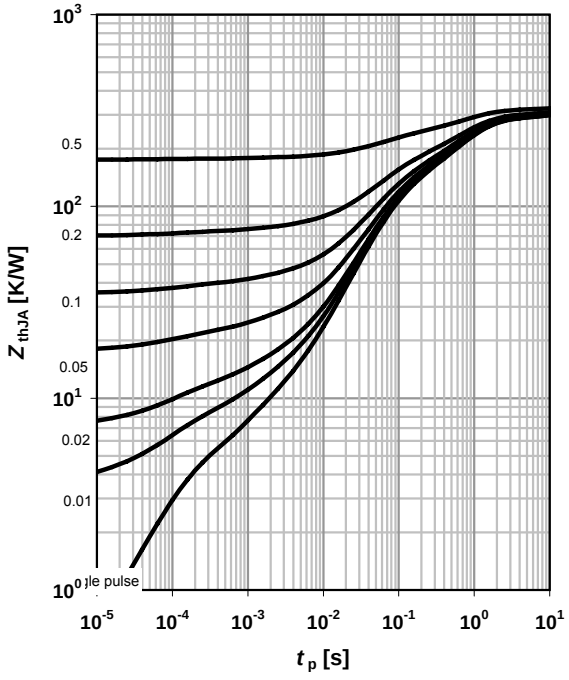
parameter: $t_p$




## 4 Max. transient thermal impedance

$Z_{thJA}=f(t_p)$

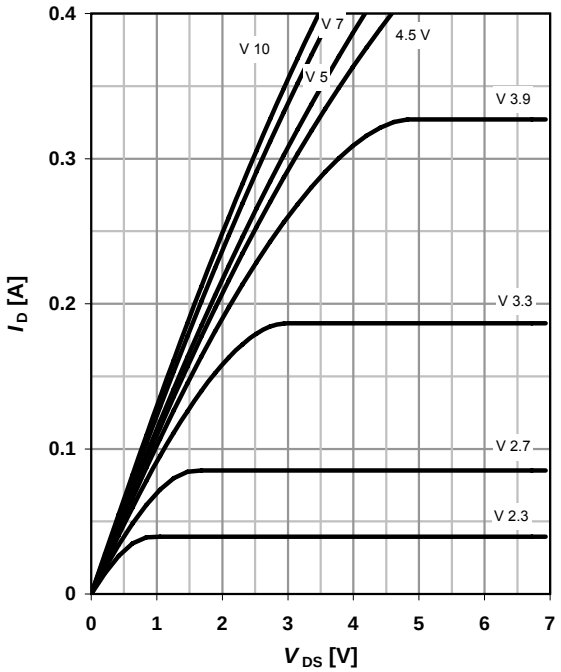
parameter: $D=t_p/T$



## 5 Typ. output characteristics

$I_D$=f($V_{DS}$); $T_j$=25 °C

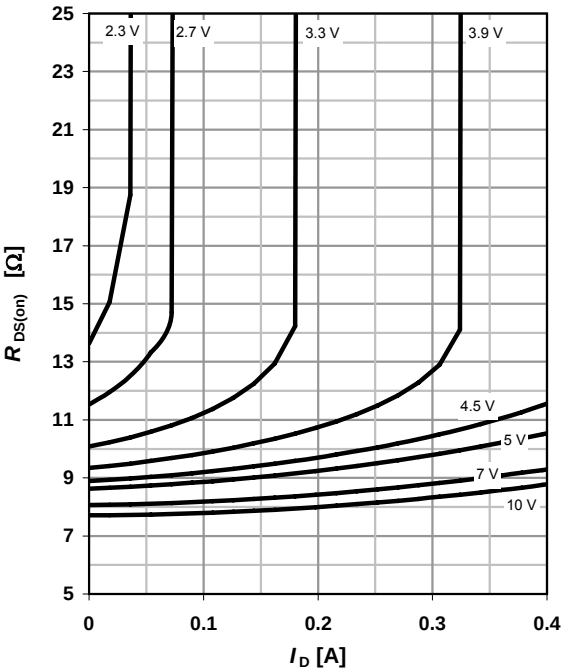
parameter: $V_{GS}$




## 6 Typ. drain-source on resistance

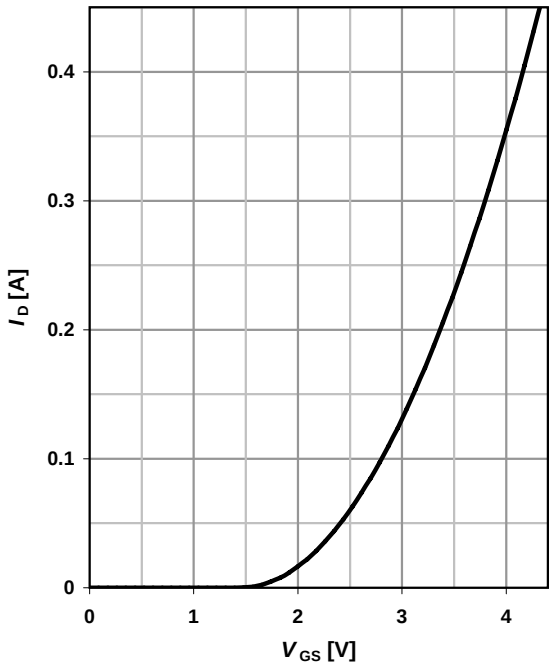
$R_{DS(on)}$=f($I_D$); $T_j$=25 °C

parameter: $V_{GS}$



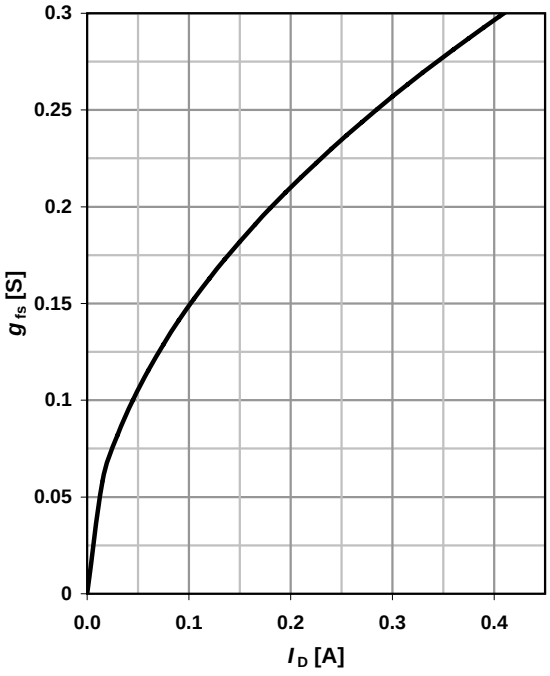

## 7 Typ. transfer characteristics

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



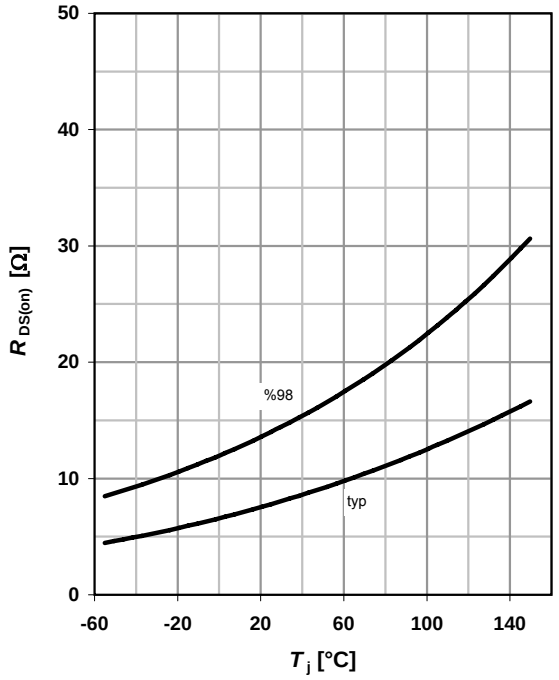

## 8 Typ. forward transconductance

$g_{fs}$=f($I_D$); $T_j$=25 °C



## 9 Drain-source on-state resistance

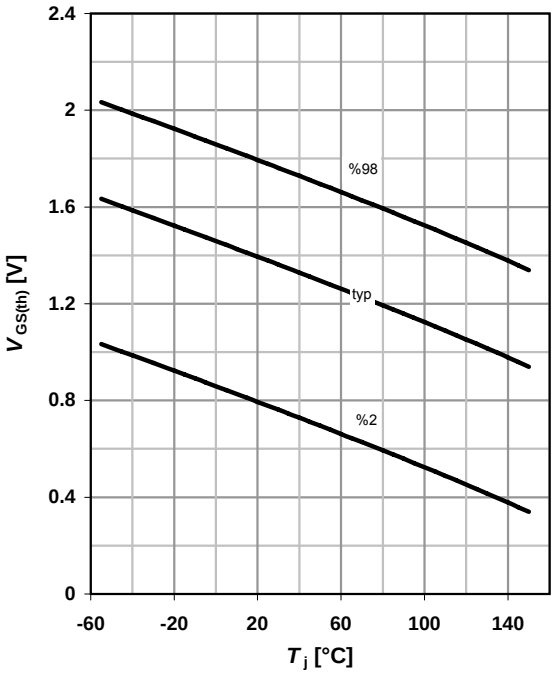
$R_{DS(on)}$=f($T_j$); $I_D$=0.1 A; $V_{GS}$=10 V




## 10 Typ. gate threshold voltage

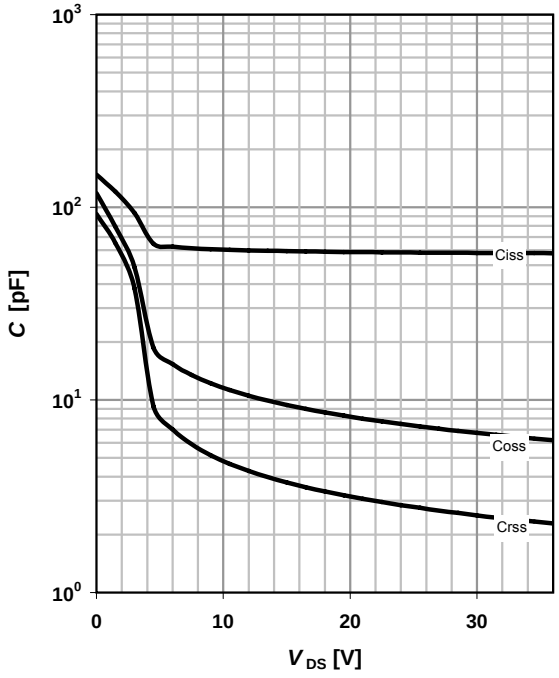
$V_{GS(th)}$=f($T_j$); $V_{DS}$=$V_{GS}$; $I_D$=56 µA

parameter: $I_D$




## 11 Typ. capacitances

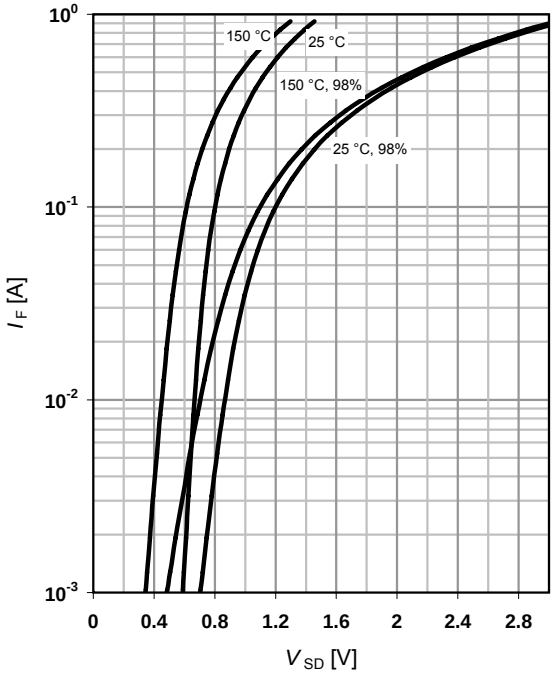
$C$=f($V_{DS}$); $V_{GS}$=0 V; $f$=1 MHz; $T_j$=25°C




## 12 Forward characteristics of reverse diode

$I_F$=f($V_{SD}$)

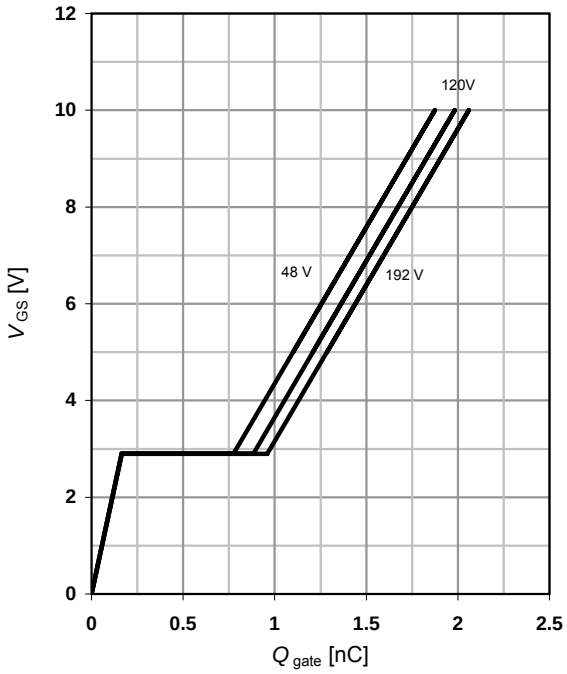
parameter: $T_j$



## 13 Typ. gate charge

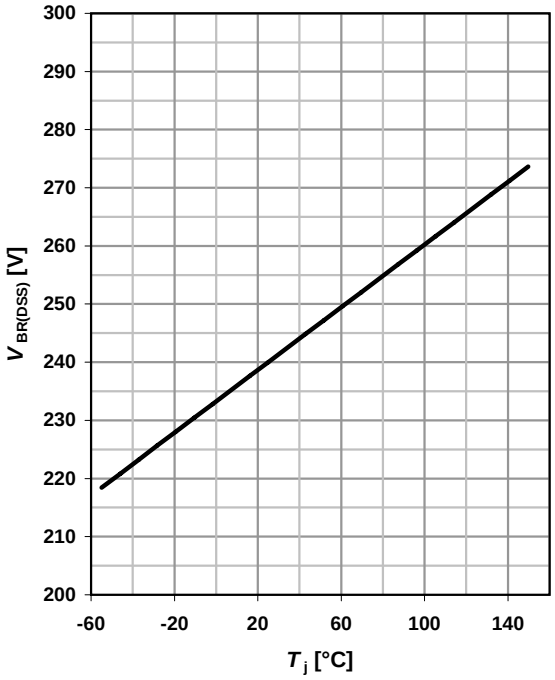
$V_{GS}$=f($Q_{gate}$); $I_D$=0.1 A pulsed

parameter: $V_{DD}$

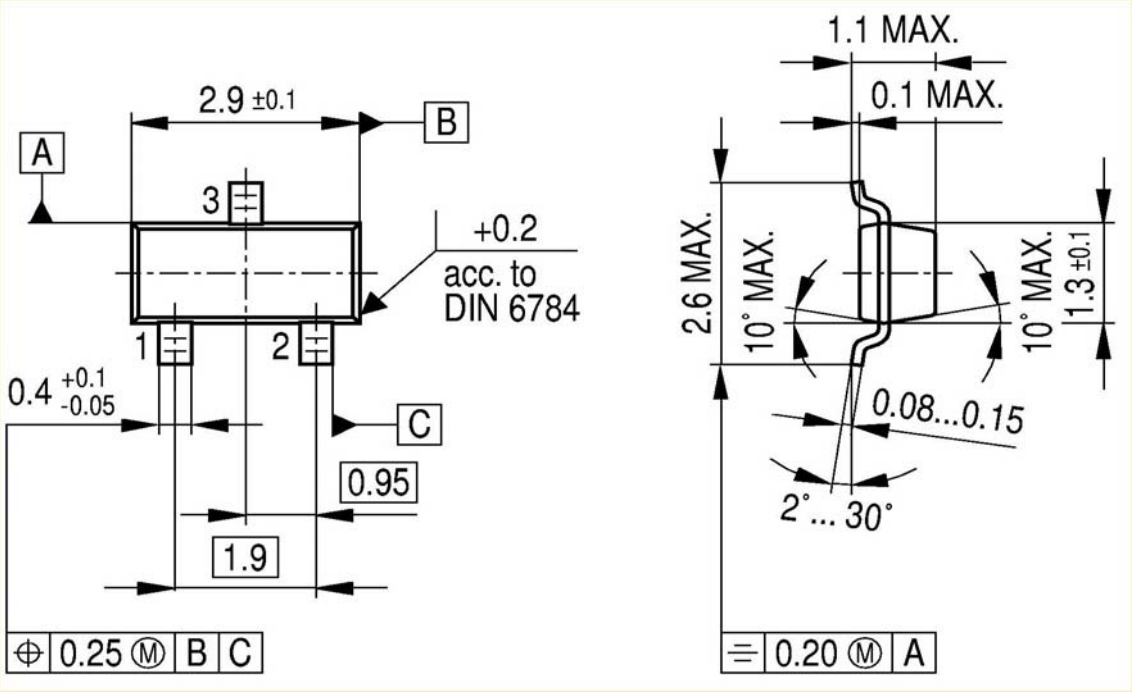



## 14 Drain-source breakdown voltage

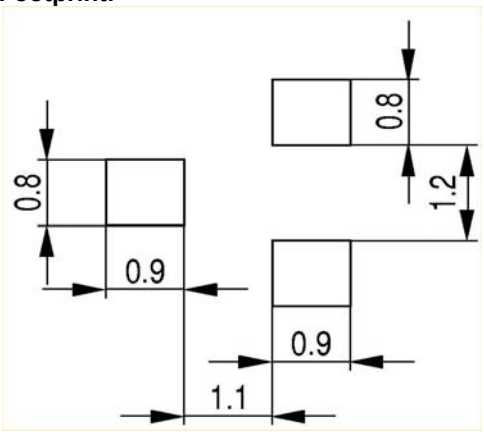
$V_{BR(DSS)}$=f($T_j$); $I_D$=250 µA



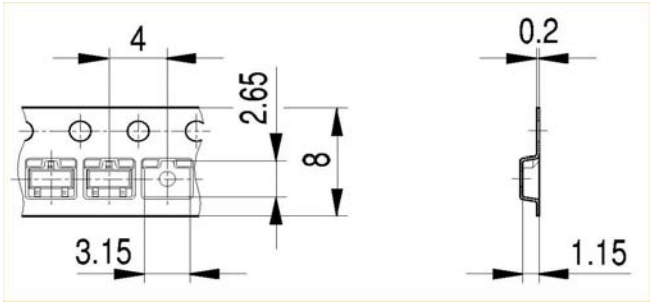
**Package Outline:**




**Footprint:**




**Packaging:**



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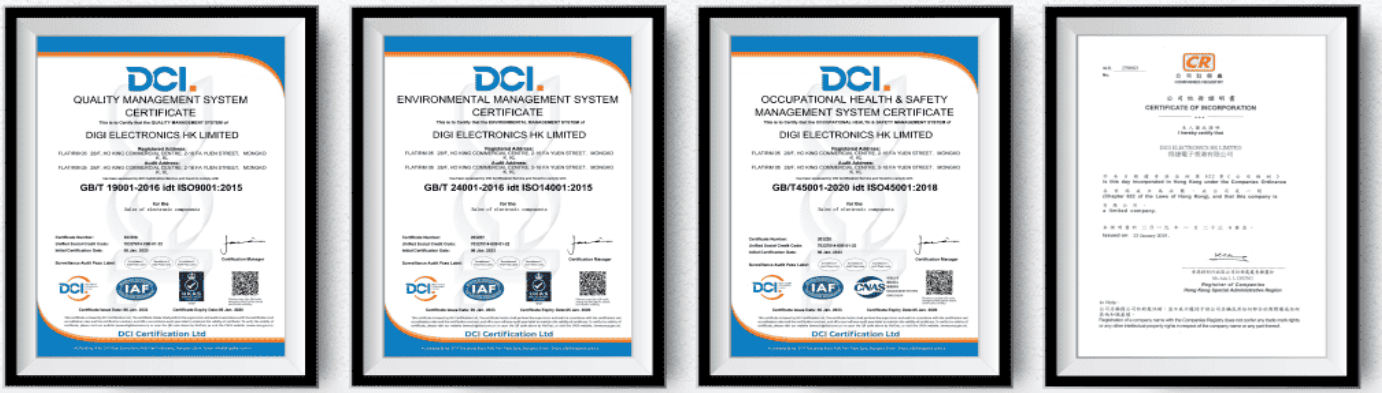



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