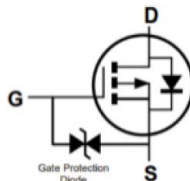
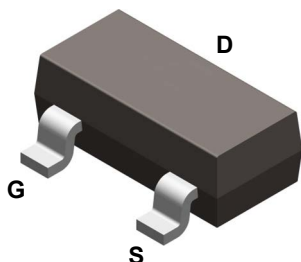


MOSFET

Single, P-Ch

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RoHS
Compliant



Features

- Low on-resistance
- High-speed switching
- Drive circuits can be simple
- Parallel use is easy
- ESD protected gate up to 2KV HBM

Typical Applications

- P-channel enhancement mode effect transistor
- Switching application

Mechanical Data

- Case: SOT-23
- Molding Compound: UL Flammability Classification Rating 94V-0
- Terminals: Matte tin-plated leads; solderability-per MIL-STD-202, Method 208

Maximum Ratings (@TA=25°C unless otherwise specified)

Parameter	Symbol	Value	Units
Drain-to-Source Voltage	V _{DSS}	-50	V
Gate-to-Source Voltage	V _{GSS}	±20	
Continuous Drain Current	I _D	-130	mA
Pulsed Drain Current *4	I _{DM}	-520	

Thermal Characteristics

Parameter		Symbol	Value	Unit
Power Dissipation *1	SOT-23	P _D	0.36	W
Thermal Resistance Junction-to-Air *1		R _{θJA}	347	°C/W
Thermal Resistance Junction-to-Lead *1		R _{θJL}	208	°C/W
Thermal Resistance Junction-to-Case *1		R _{θJC}	175	°C/W
Operating Junction Temperature Range		T _J	-55 to +150	°C
Storage Temperature Range		T _{STG}	-55 to +150	°C

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Electrical Characteristics (@TA=25°C unless otherwise specified)

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
V _{DSS}	Drain-Source Breakdown Voltage	V _{GS} = 0V, I _D = -250μA	-50	-	-	V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} = -50V, V _{GS} = 0V	-	-	-1	μA
I _{GSS}	Gate-Body Leakage Current	V _{GS} = ±20V, V _{DS} = 0V	-	-	±10	μA
On Characteristics *2						
R _{DS(ON)}	Static Drain-Source On-resistance	V _{GS} = -5V, I _D = -0.1A	-	2.4	8	Ω
		V _{GS} = -10V, I _D = -0.13A	-	2	6	
V _{GS(TH)}	Gate Threshold Voltage	V _{DS} = V _{GS} , I _D = -250μA	-1	-1.5	-2	V
Dynamic Characteristics *3						
C _{ISS}	Input Capacitance	V _{GS} = 0V	-	53	-	pF
C _{OSS}	Output Capacitance	V _{DS} = -20V	-	11	-	
C _{RSS}	Reverse Transfer Capacitance	f = 1.0MHz	-	5	-	
R _G	Gate Resistance	f = 1.0MHz, V _{GS} = 0V	-	721	-	Ω
Switching Characteristics						
t _{d(ON)}	Turn-on Delay Time	V _{DS} = -15V R _L = -50Ω I _D = -2.5A	-	2.5	-	ns
t _r	Turn-on Rise Time		-	1	-	
t _{d(OFF)}	Turn-Off Delay Time		-	16	-	
t _f	Turn-Off Fall Time		-	8	-	
Q _G	Total Gate-Charge	V _{DS} = -25V	-	2.5	-	nC
Q _{GS}	Gate to Source Charge	V _{GS} = -4.5V	-	0.83	-	
Q _{GD}	Gate to Drain (Miller) Charge	I _D = -0.2A	-	0.82	-	
Source-Drain Diode Characteristics						
V _{SD}	Diode Forward Voltage *2	I _S = -0.26A, V _{GS} = 0 V	-	-0.9	-1.4	V
I _S	Continuous Source Current	T _C = 25°C	-	-	-0.13	A
I _{SM}	Pulsed Source Current	T _C = 25°C	-	-	-0.52	A

Notes:

1. Surface mounted on FR4 board, and standard footprint, t ≤ 10 sec
2. Pulse test: pulse width ≤ 300μs, duty cycle ≤ 2%
3. Guaranteed by design, not subject to production
4. Pulse width limited by maximum junction temperature

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Ratings and Characteristic Curves (TA=25°C unless otherwise noted)

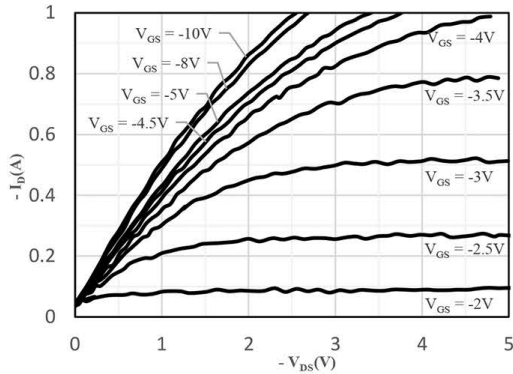


Fig 1 Output Characteristics

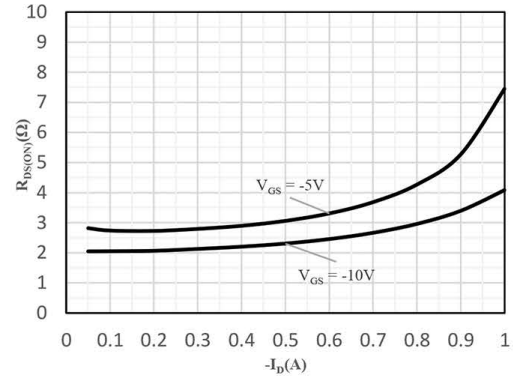


Fig 2 On-Resistance vs. Drain Current
and Gate Voltage

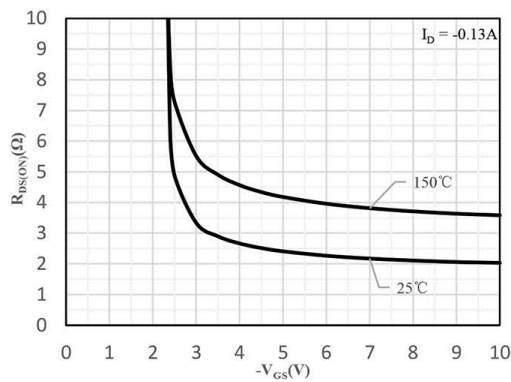


Fig 3 On-Resistance vs. Gate-Source Voltage

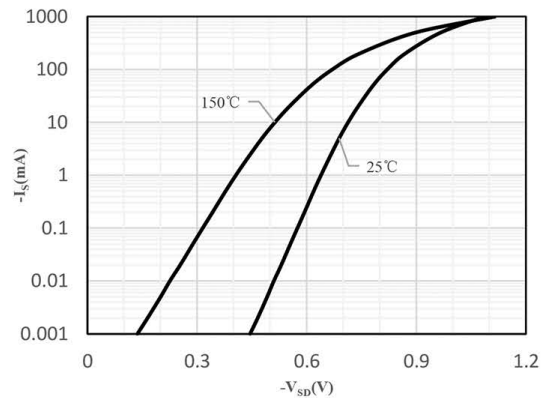


Fig 4 Body-Diode Characteristics

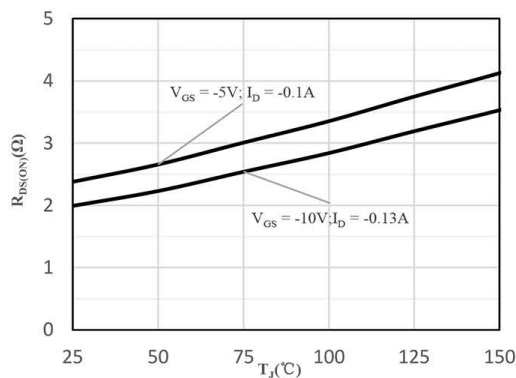


Fig 5 On-Resistance vs. Junction Temperature

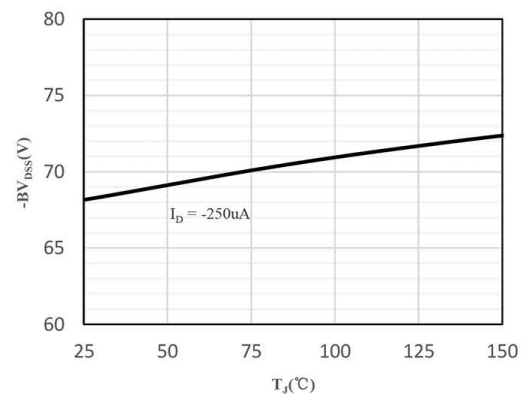


Fig 6 Drain-Source Voltage vs.
Junction Temperature

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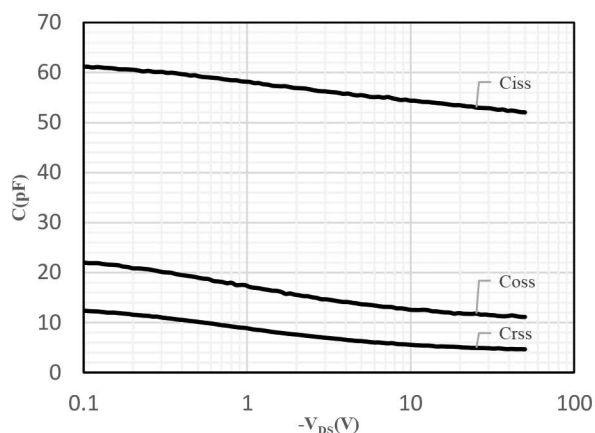


Fig 7 Capacitance Characteristics

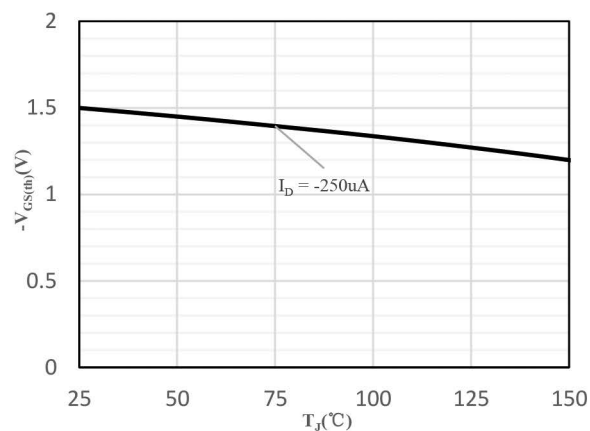


Fig 8 Gate Voltage vs. Junction Temperature

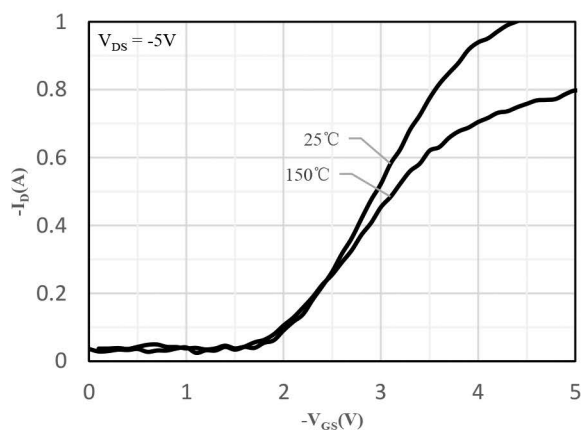


Fig 9 Transfer Characteristics

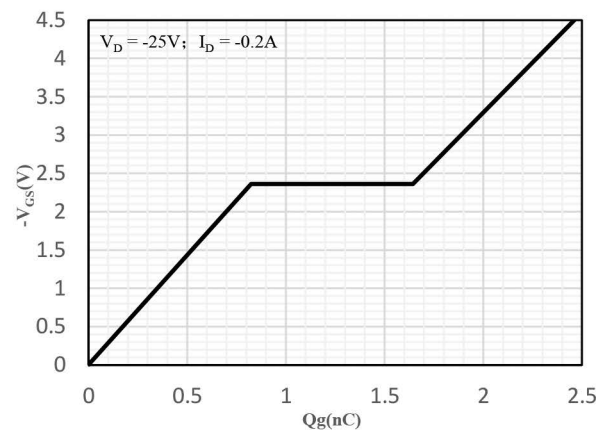


Fig 10 Gate-Charge Characteristics

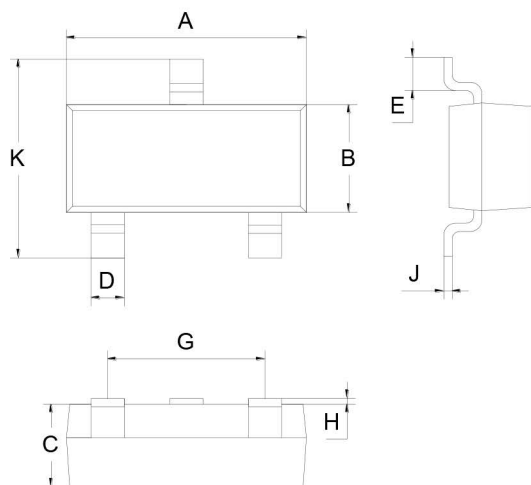
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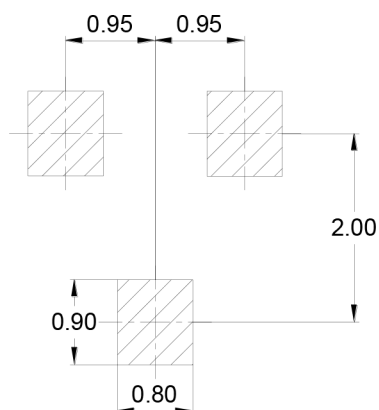
Package Outline Dimensions

SOT-23



SOT-23		
Dimension	Min.	Max.
A	2.70	3.10
B	1.10	1.50
C	0.90	1.10
D	0.30	0.50
E	0.35	0.48
G	1.80	2.00
H	0.02	0.10
J	0.05	0.15
K	2.20	2.60

Mounting Pad Layout



Dimensions : Millimetres

Part Number Table

Description	Part Number
MOSFET, Single, P-Channel, Enhancement Mode, -50V, -130mA, 0.36W, SOT-23	BSS84ES

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