

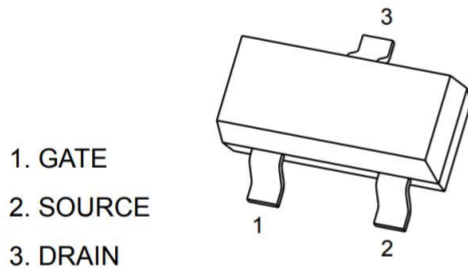
Product Summary

- V_{DS} 60 V
- I_D 3A
- $R_{DS(ON)}$ ($V_{GS}=10V$) $\leq 105m\Omega$
- ESD protected gate, typical 6kV (HBM)

Application

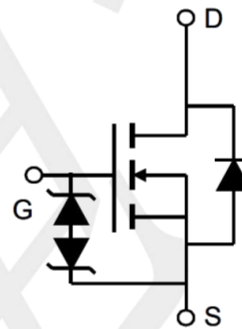
- Interfacing Switching
- Load Switch
- Portable equipment and battery
- DC/DC Converter

Package and Pin Configuration



SOT23

Circuit diagram



Absolute Maximum Ratings ($T_A=25^\circ\text{C}$ unless otherwise noted)

PARAMETER	SYMBOL	LIMIT	UNIT
Drain-Source Voltage	V_{DS}	60	V
Gate-Source Voltage	V_{GS}	± 20	V
Continuous Drain Current	I_D	3	A
Pulsed Drain Current ($t = 100 \mu s$)	I_{DM}	10	A
Electrostatic Discharge Rating Human Body Model	ESD	6.0	KV
Maximum Power Dissipation	P_D	0.35	W
Operating Junction Temperature Range	T_J	+155	$^\circ\text{C}$
Storage Temperature Range	T_{stg}	-55 to +150	$^\circ\text{C}$

Thermal Characteristic

PARAMETER	Symbol	Value	Unit
Thermal Resistance from Junction to Ambient($t \leq 10s$)	$R_{\theta JA}$	357	$^\circ\text{C/W}$

Note : When mounted on 1" square PCB (FR4 material).

Electrical Characteristics (T_A=25°C unless otherwise noted)

PARAMETER	CONDITIONS	SYMBOL	MIN	TYP	MAX	UNIT
Static						
Drain-Source Breakdown Voltage	V _{GS} =0V, I _D = 10μA	BV _{DSS}	60	--	--	V
Gate-Source Threshold Voltage	V _{DS} =V _{GS} , I _D = 250μA	V _{GS(th)}	0.5	1.0	2.0	V
Gate-Source Leakage	V _{DS} =0V, V _{GS} = ±20V	I _{GSS}	--	--	±100	nA
Zero Gate Voltage Drain Current	V _{DS} = 60V, V _{GS} =0V	I _{DSS}	--	--	1.0	μA
Drain-Source On-State Resistance (Note 1)	V _{GS} = 10V, I _D = 3A	R _{DS(on)}	--	--	105	mΩ
	V _{GS} = 4.5V, I _D = 3A		--	--	125	
Forward Transconductance (Note 2)	V _{DS} = 15V, I _D = 2A	g _{fs}	--	2.0	--	S
Dynamic (Note 2)						
Input Capacitance	V _{DS} = 30V, V _{GS} = 0V, F = 1.0MHz	C _{iss}	--	247	--	pF
Output Capacitance		C _{oss}	--	34	--	
Reverse Transfer Capacitance		C _{rss}	--	19.5	--	
Switching						
Turn-On Delay Time (Note 3)	V _{DS} = 30V, I _D = 1.5A, V _{GEN} = 10V, R _G = 1Ω	t _{d(on)}	--	6.0	--	nS
Rise Time (Note 3)		t _r	--	15	--	
Turn-Off Delay Time (Note 3)		t _{d(off)}	--	15	--	
Fall Time (Note 3)		t _f	--	10	--	
Total Gate Charge	V _{DS} = 30V, I _D = 3A, V _{GS} = 4.5V	Q _g	--	6.0	--	nC
Gate-Source Charge		Q _{gs}	--	1.0	--	
Gate-Drain Charge		Q _{gd}	--	1.3	--	
Source-Drain Diode Ratings and Characteristics (Note 2)						
Forward Voltage	V _{GS} = 0V, I _F = 1A	V _{SD}	--	0.85	1.2	V
Continuous Source Current	Integral reverse diode in the MOSFET	I _S	--	--	3	A
Pulsed Current (Note 1)		I _{SM}	--	--	10	A

Notes:

1. Pulse test; pulse width ≤ 300 μS, duty cycle ≤ 2%.
2. Guaranteed by design, not subject to production testing.
3. Independent of operating temperature

TYPICAL CHARACTERISTICS

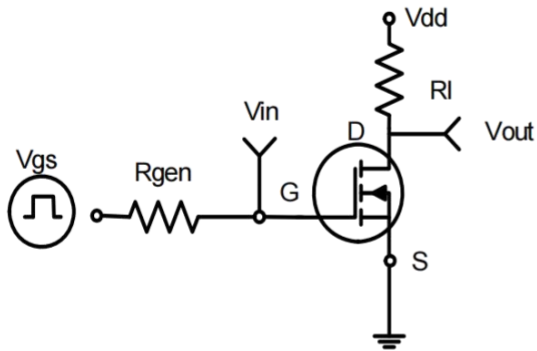


Figure 1: Switching Test Circuit

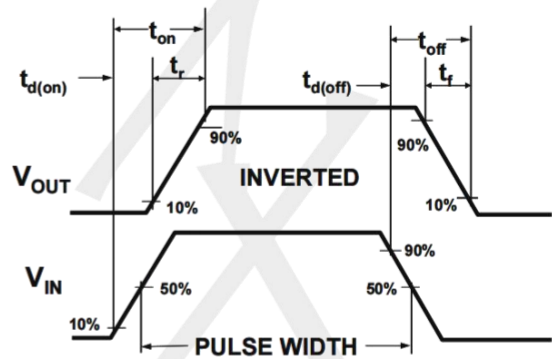


Figure 2: Switching Waveforms

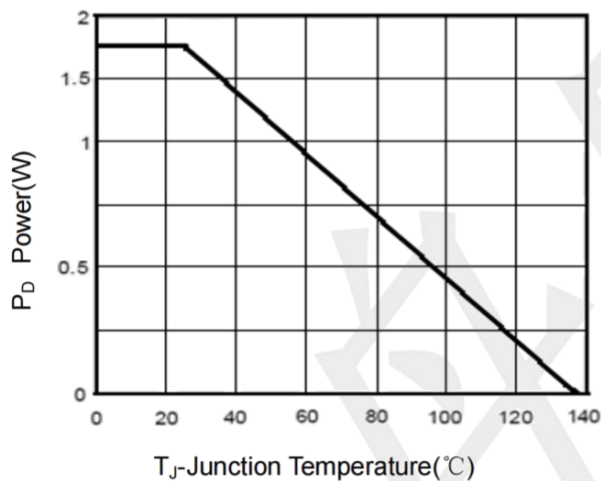


Figure 3 Power Dissipation

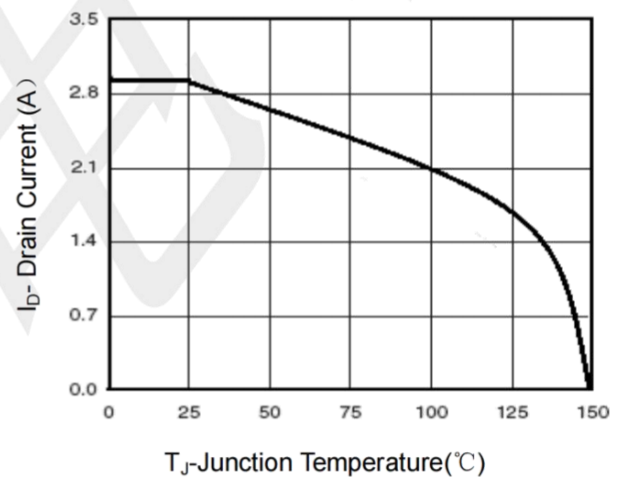


Figure 4 Drain Current

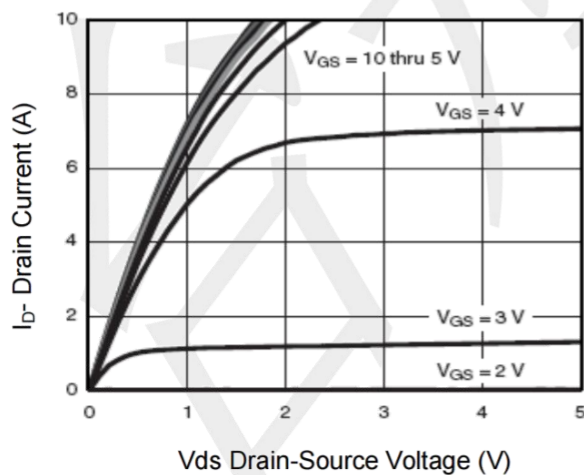


Figure 5 Output Characteristics

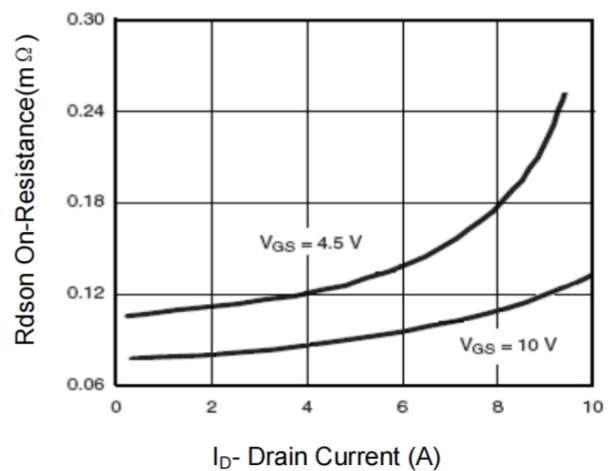


Figure 6 Drain-Source On-Resistance

TYPICAL CHARACTERISTICS

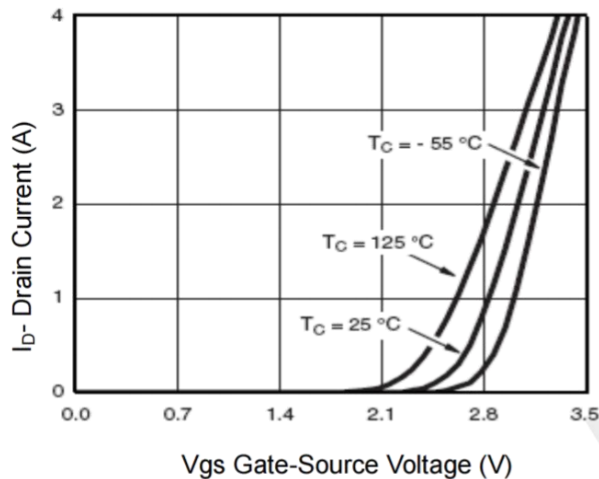


Figure 7 Transfer Characteristics

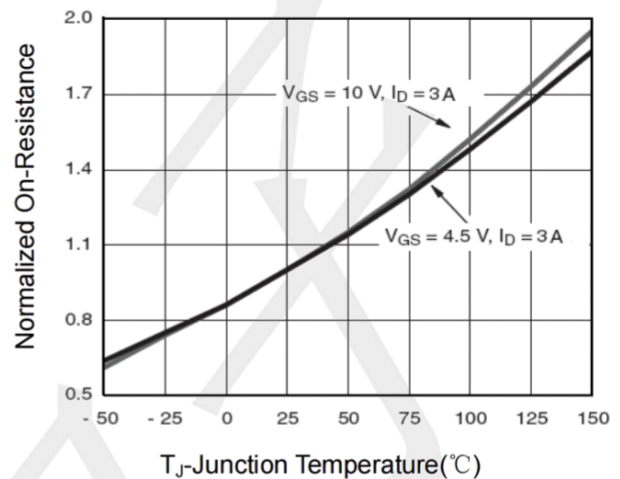


Figure 8 Drain-Source On-Resistance

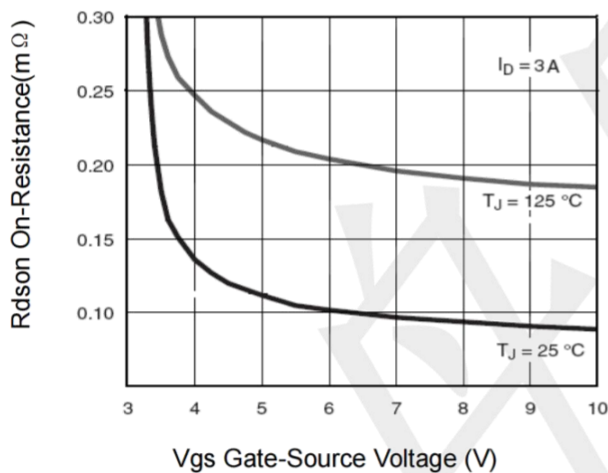


Figure 9 Rdson vs Vgs

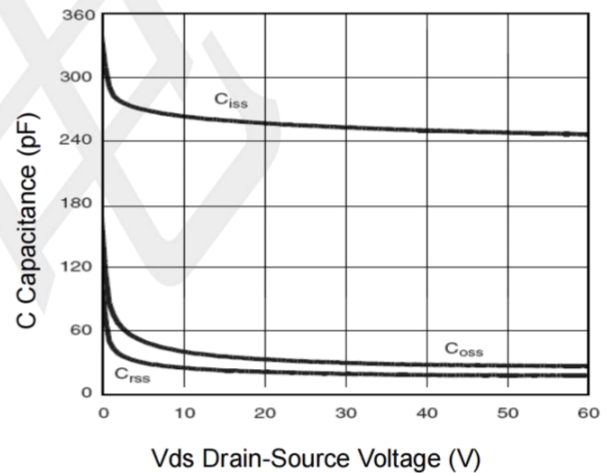


Figure 10 Capacitance vs Vds

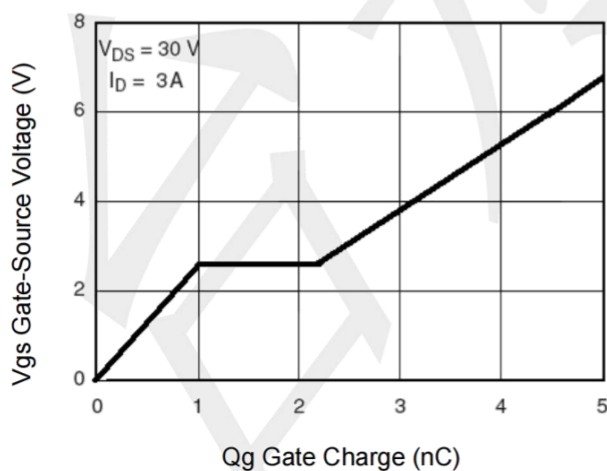


Figure 11 Gate Charge

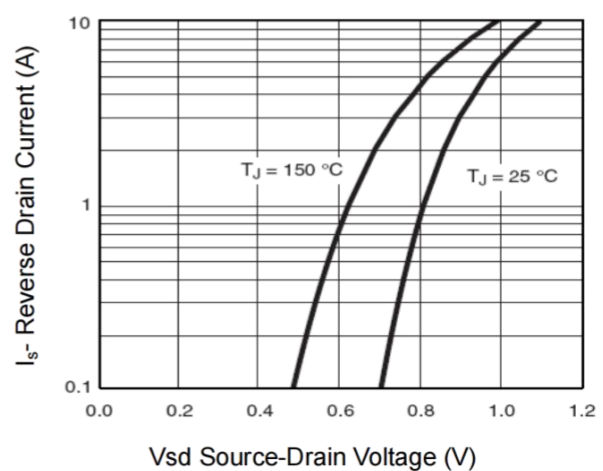
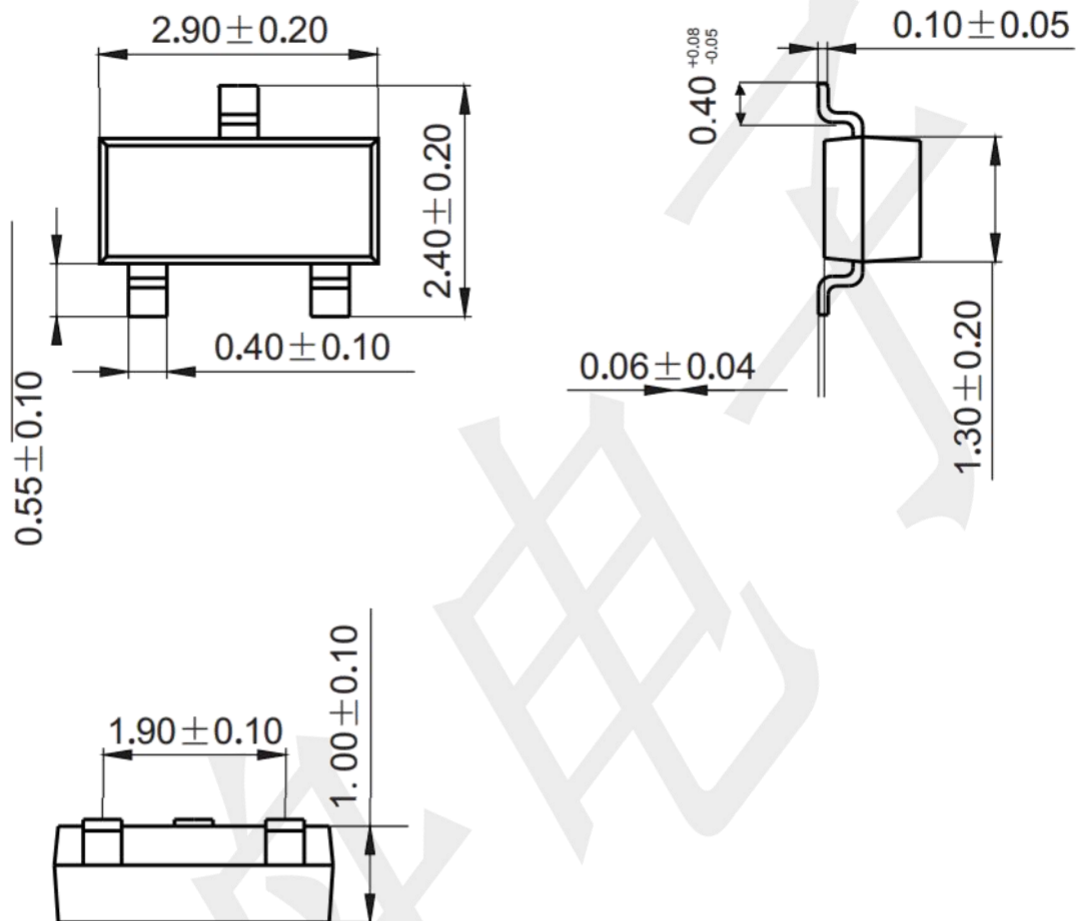


Figure 12 Source- Drain Diode Forward

Package Outline Dimensions (unit: mm)

SOT-23



Mounting Pad Layout (unit: mm)

