100V N-Channel Enhancement Power MOSFET

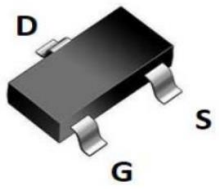
V_{DS}	100V
I_D	170mA
$R_{DS(ON)_MAX}$ @V_{GS}=10V	6Ω

DESCRIPTION：

·Epoxy meets UL-94 V-0 flammability rating and halogen free

·Moisture Sensitivity Level 1

·High temperature soldering guaranteed 260°C/10seconds at terminals



SOT-23

TYPICAL APPLICATIONS：

·Small servo motor control

·Power MOSFET gate drivers

·Switching application

MAXIMUM RATINGS (at T_C = 25 °C, unless otherwise specified)

Characteristic	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	100	V
Gate-Source Voltage	V_{GS}	±20	V
Continuous Drain Current	I_D	170	mA
Drain Current-Pulsed	I_{DM}	0.68	A
Maximum Power Dissipation	P_D	350	mW
Junction Temperature	T_J	-55~+150	℃
Junction & Storage temperature Range	T_{STG}	-55~+150	℃

THERMAL CHARACTERISTICS

Characteristic	Condition	Symbol	Value	Unit
Thermal resistance,	Junction to Ambient	$R_{\theta JA}$	357	℃/W

ELECTRICAL CHARATERISTICS (at T_J = 25 °C, unless otherwise specified)

Characteristic	Symbol	Min.	Typ.	Max.	Unit
Drain-Source Breakdown Voltage VGS = 0V, ID = 250uA	$V_{(BR)DSS}$	100			V
Gate-Source threshold voltage VDS = VGS, ID = 1mA	$V_{GS(th)}$	1	1.6	2.8	V
Gate-Source Leakage Current VGS = ±20V, VDS = 0V	I_{GSS}			±50	nA
Zero Gate Voltage Drain Current VDS =60 V, VGS = 0 V	I_{DSS}			1	uA
Drain-Source On-State Resistance VGS = 10V, ID = 170mA VGS = 5V, ID = 170m A	$R_{DS(on)}$		3.0 3.5	6 10	Ω
Diode Forward Voltage VGS = 0V, I_S = 200mA	V_{SD}			1.2	V
Maximum Pulsed Body Diode Forward Current	IS			200	mA
Gate to Source Charge VDS= 10V, ID= 0.22A, VGS= 10V	Q_{GS}		1.4	2	nC
Gate to Drain Charge VDS= 10V, ID= 0.22A, VGS= 10V	Q_{GD}		0.15	0.25	nC
Total Gate Charge VDS= 10V, ID= 0.22A, VGS= 10V	Q_G		0.2	0.4	nC
Input capacitance f=1MHz, VDS=25 V, VGS=0 V	C_{iss}		29	60	pF
Output capacitance f=1MHz, VDS=25 V, VGS=0 V	C_{oss}		10	15	pF
Reverse transfer capacitance f=1MHz, VDS=25 V, VGS=0 V	C_{rss}		2	6	pF
Turn-on delay time VDS= 30V, VGS= 10V, ID= 280mA, R_{GEN}=50Ω	td (ON)			8	ns
Rise time VDS= 30V, VGS= 10V, ID= 280mA, R_{GEN}=50Ω	tr			8	ns
Turn-off delay time VDS= 30V, VGS= 10V, ID= 280mA, R_{GEN}=50Ω	td (OFF)			13	ns
Fall time VDS= 30V, VGS= 10V, ID= 280mA, R_{GEN}=50Ω	tf			16	ns

Typical Performance Characteristics

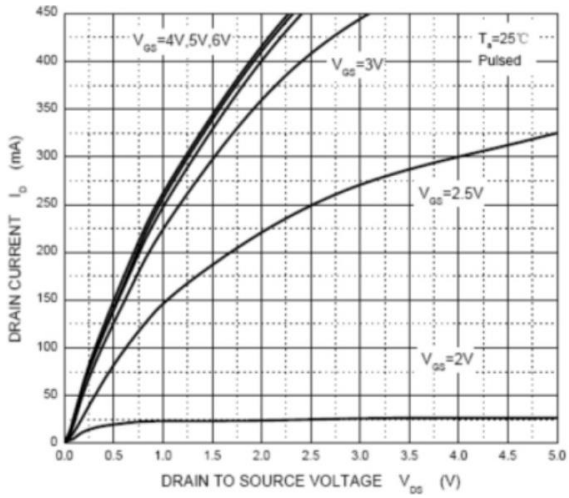


Figure 1. Output Characteristics

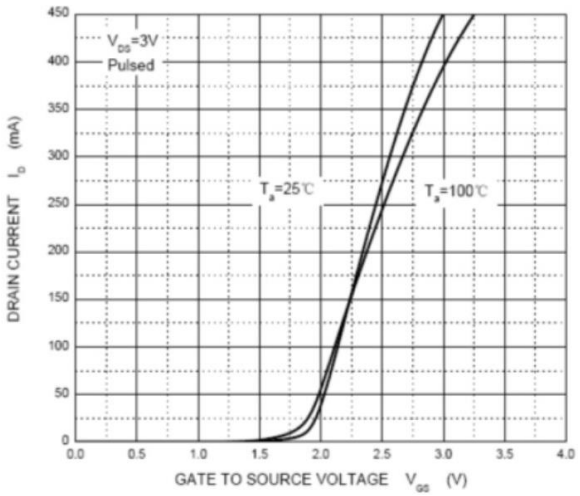


Figure 2. Transfer Characteristics

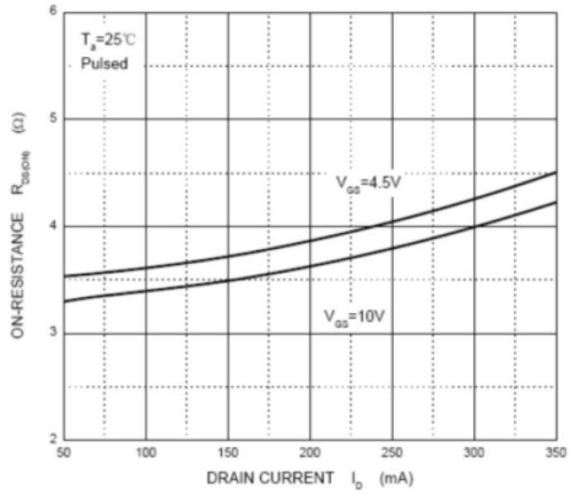


Figure 3. $R_{DS(on)}$ —— I_D

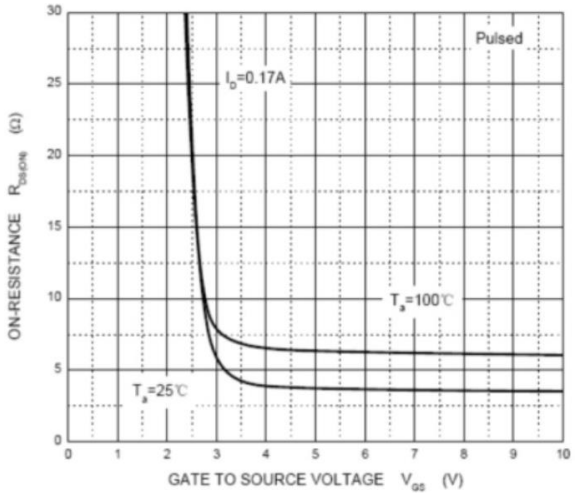


Figure 4. $R_{DS(on)}$ —— V_{GS}

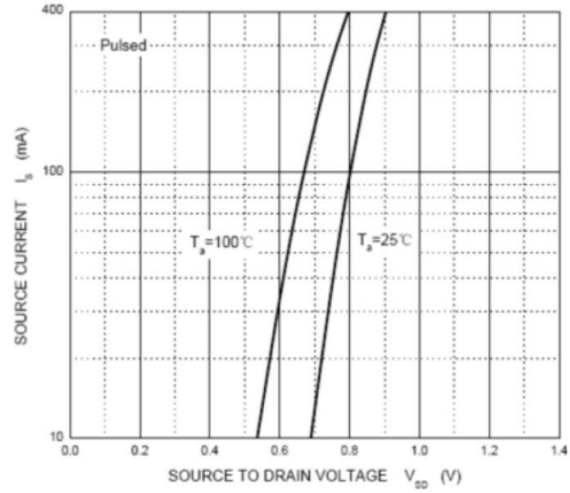


Figure 5. I_S —— V_{SD}

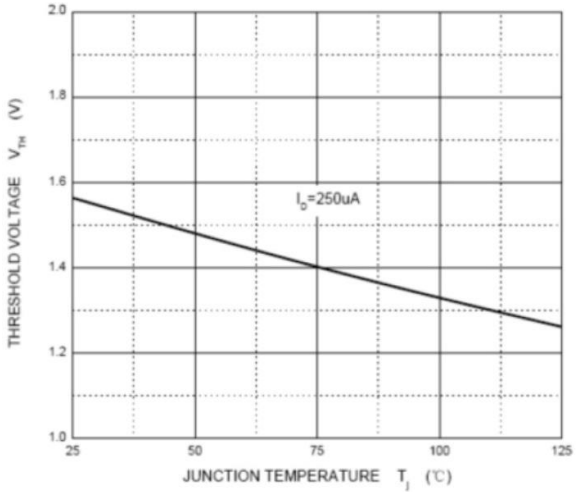
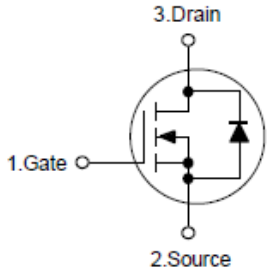
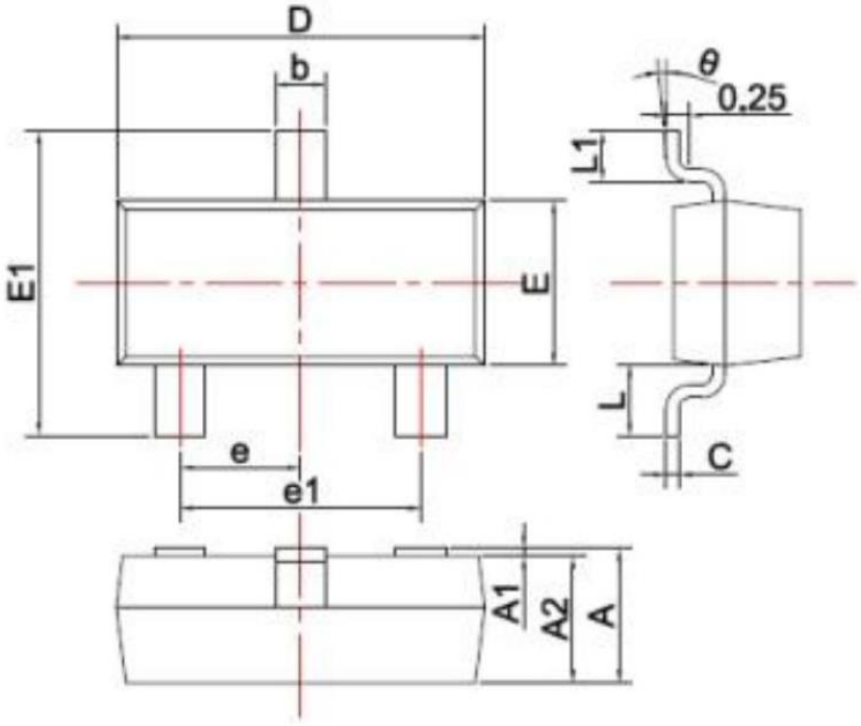


Figure 6. Threshold Voltage

·Circuit diagram



·Package outlines : Dimensions in (mm)



SYMBOL	DIMENSIONS	
	MIN.	MAX.
A	0.900	1.150
A1	0.000	0.100
A2	0.900	1.050
b	0.300	0.500
c	0.080	0.150
D	2.800	3.000
E	1.200	1.400
E1	2.250	2.550
e	0.950TYP	
e1	1.800	2.000
L	0.550REF	
L1	0.300	0.500
θ	0°	8°

Unit: mm

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