-50V P-Channel Power MOSFET

V_{DSS}	-50V
I_D	-0.13A
$R_{DS(ON)\_Typ.}$ @V_{GS}=-10V	8Ω

DESCRIPTION：

·Low Gate Charge

·Energy Efficient

·Low Threshold Voltage

·High-speed Switching

·Miniature Surface Mount Package Saves Board Space

·AEC-Q101 Qualified

SOT-23

TYPICAL APPLICATIONS：

·DC-DC converters.

·Load switching

·Power management in portable and battery-powered products such as computers, printers, cellular and cordless telephones

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

Characteristic	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	-50	V
Gate-Source Voltage	V_{GS}	±20	V
Continuous Drain Current	I_D	-0.13	A
Pulsed Drain Current, tp<10us(1)	I_{DM}	-0.52	A
Power dissipation	P_D	225	mW
Junction & Storage temperature Range	T_J, T_{STG}	-55~+150	℃
Maximum Lead Temperature for Soldering Purposes, Duration for 5 Seconds	T_L	260	℃

Notes： 1. Repetitive rating: Pulse width limited by junction temperature..

THERMAL CHARACTERISTICS

Characteristic	Condition	Symbol	Value	Unit
Thermal resistance,	Junction to Ambient	$R_{\theta JA}$	556	℃/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	$V_{(BR)DSS}$	-50			V
Zero Gate Voltage Drain Current VDS = -50 V, VGS = 0 V, VDS = -25 V, VGS = 0 V	I_{DSS}			-15 -0.1	uA
Gate-Source Leakage Current VGS = ±20V, VDS = 0V	I_{GSS}			±5	nA
Gate-Source threshold voltage VDS = VGS, ID = -250uA	$V_{GS(th)}$	-0.9	-1.6	-2	V
Drain-Source On-State Resistance VGS = -5V, ID = -0.1A VGS = -10V, ID = -0.1A	$R_{DS(on)}$		5.8 4.5	10 8	Ω
Forward Transconductance VDS = -25 V, ID = -100mA	gfs	50			mS
Input capacitance f=1MHz, VDS=5 V, VGS=0 V	C_{iss}		30		pF
Output capacitance f=1MHz, VDS=5 V, VGS=0 V	C_{oss}		10		pF
Reverse transfer capacitance f=1MHz, VDS=5 V, VGS=0 V	C_{rss}		5		pF
Turn-on delay time VDD= -15V, VGS= 10V, ID=-2.5A, RL=50Ω	$t_{d\ (ON)}$		2.5		ns
Rise time VDD= -15V, VGS= 10V, ID=-2.5A, RL=50Ω	tr		1		ns
Turn-off delay time VDD= -15V, VGS= 10V, ID=-2.5A, RL=50Ω	$t_{d\ (OFF)}$		16		ns
Fall time VDD= -15V, VGS= 10V, ID=-2.5A, RL=50Ω	tf		8		ns
Continuous Current	I_S			-0.13	A
Pulsed Current	I_{SM}			-0.52	A
Diode Forward Voltage VGS = 0V, IS =- 0.13A	V_{SD}			-2.2	V

Typical Performance Characteristics

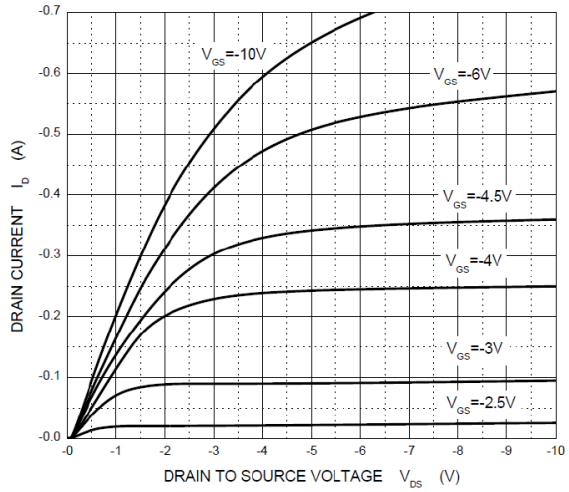


Figure 1. Output Characteristics

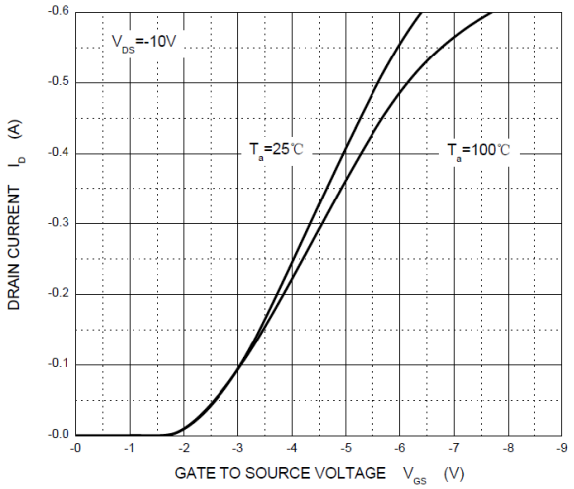


Figure 2. Typical Transfer

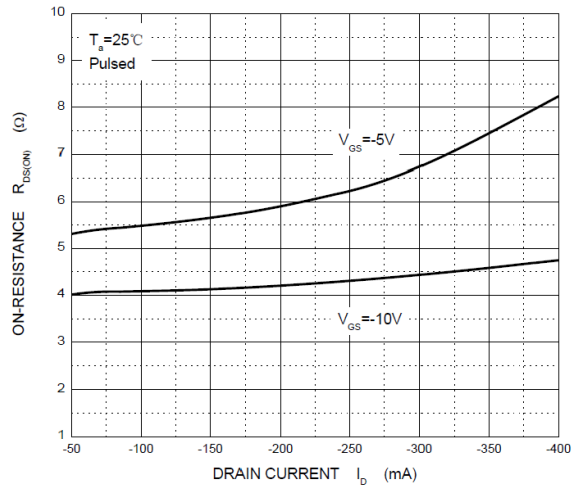


Figure 3. $R_{DS(ON)}$ - I_D

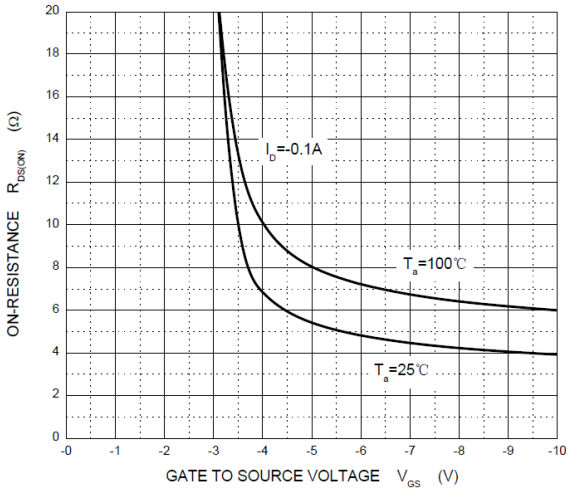


Figure 4. $R_{DS(ON)}$ - V_{GS}

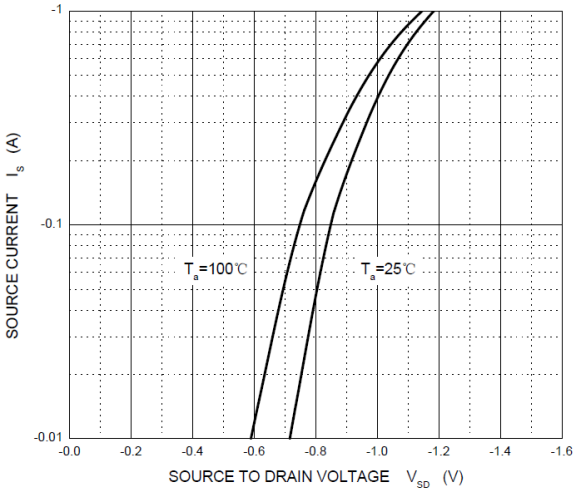


Figure 5. I_S - V_{SD}

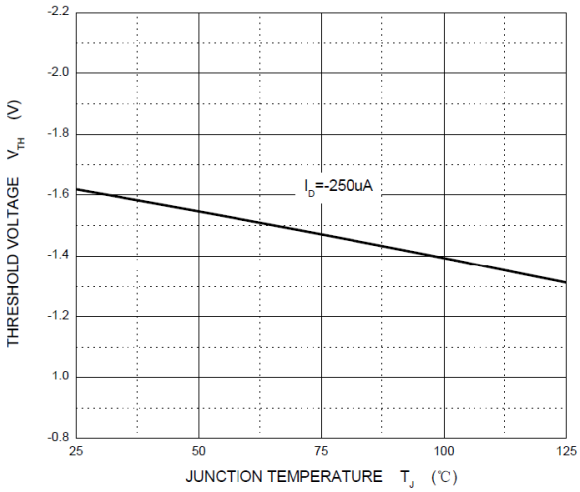
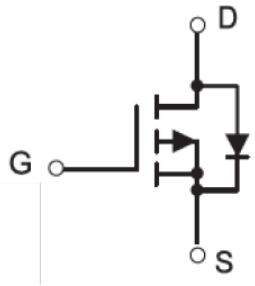
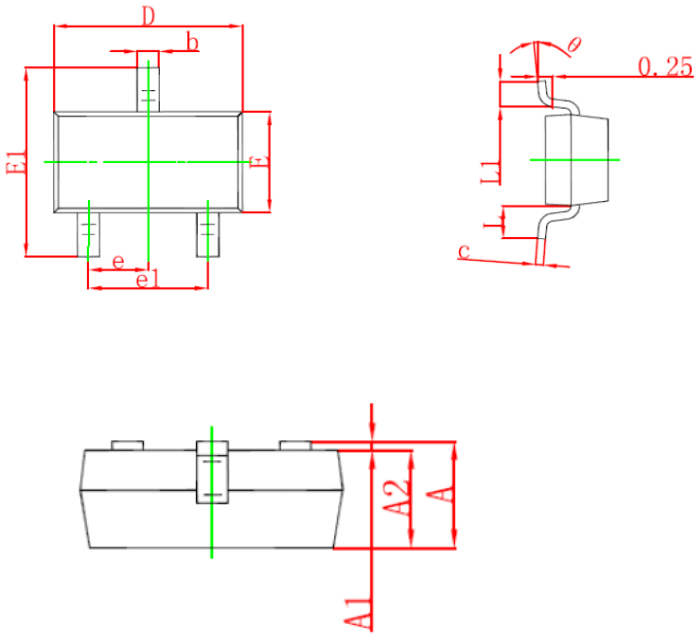


Figure 6. Threshold Voltage

·Circuit diagram



·Package outlines : Dimensions in (mm)



Symbol	Min.	Max.
A	0.90	1.15
A1	0	0.10
A2	0.90	1.05
b	0.30	0.50
c	0.08	0.15
D	2.80	3.00
E	1.20	1.40
E1	2.25	2.55
e	0.95 typ.	
e1	1.80	2.00
L	0.55 ref.	
L1	0.30	0.50
θ	0°	8°

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