

## 60V N-Channel Power MOSFET

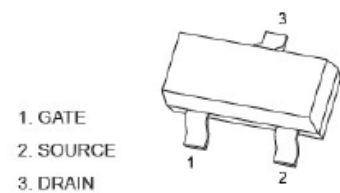
### DESCRIPTION :

- Load Switch for Portable Devices
- DC/DC Converter
- High density cell design for Low RDS(on)
- Voltage controlled small signal switch
- Rugged and reliable
- High saturation current capability
- ESD protected

$V_{(BR)DSS}$	60V
$I_D$	0.340A
$R_{DS(ON),MAX} @ V_{GS}=10V$	5Ω

### TYPICAL APPLICATIONS :

- SOT-323 Small Outline Plastic Package
- Epoxy UL: 94V-0.
- Mounting Position: Any.



SOT-323

### MAXIMUM RATINGS (at $T_c = 25\text{ }^\circ\text{C}$ , unless otherwise specified)

Characteristic	Symbol	Value	Unit
Drain-Source Voltage	$V_{DS}$	60	V
Gate-Source Voltage	$V_{GS}$	±20	V
Continuous Drain Current	$I_D$	0.34	A
Pulsed Drain Current <sup>(1)</sup>	$I_{DM}$	0.80	A
Power dissipation	$P_D$	200	mW
Junction Temperature	$T_J$	150	°C
Storage Temperature	$T_{STG}$	-55~+150	°C
Thermal Resistance From Junction to Ambient	$R_{\theta JA}$	625	°C/W

Notes : 1. Repetitive Rating: Pulse Width Limited by Junction Temperature.

ELECTRICAL CHARACTERISTICS (at  $T_J = 25\text{ }^\circ\text{C}$ , unless otherwise specified)

Characteristic	Symbol	Min.	Typ.	Max.	Unit
Drain-Source Breakdown Voltage VGS = 0V, ID = 250uA	$V_{(BR)DSS}$	60			V
Gate-Source threshold voltage VDS = VGS, ID = 1mA	$V_{GS(th)}$	1.0	1.3	2.5	V
Gate-Source Leakage Current VGS = $\pm 20$ V, VDS = 0V	$I_{GSS}$			$\pm 10$	$\mu\text{A}$
Zero Gate Voltage Drain Current VDS=48 V, VGS=0V	$I_{DSS}$			1.0	$\mu\text{A}$
Drain-Source On-State Resistance VGS = 4.5V, ID = 200mA VGS = 10V, ID = 500mA	$R_{DS(on)}$		1.1 0.9	5.3 5	$\Omega$
Input capacitance f=1MHz, VDS=10 V, VGS=0 V	$C_{iss}$			40	pF
Output capacitance f=1MHz, VDS=10 V, VGS=0 V	$C_{oss}$			30	pF
Reverse transfer capacitance f=1MHz, VDS=10 V, VGS=0 V	$C_{rss}$			10	pF
Turn-on delay time VDD= 50V, VGS= 10V, RG=50 $\Omega$ , RL=250 $\Omega$ , RGS=50 $\Omega$	$t_{d(ON)}$			10	ns
Turn-off delay time VDD= 50V, VGS= 10V, RG=50 $\Omega$ , RL=250 $\Omega$ , RGS=50 $\Omega$	$t_{d(OFF)}$			15	ns
Reverse Recovery Time VGS=0V, IS=300mA, VR=25V, dIS/dt=-100A/us	$t_{rr}$		30		ns
Recovery Charge VGS=0V, IS=300mA, VR=25V, dIS/dt=-100A/us	$Q_r$		30		nC
Gate-Source Breakdown Voltage IGS= $\pm 1$ mA(Open Drain)	$BV_{GSO}$	$\pm 21.5$		$\pm 30$	V
Diode Forward Voltage IS=0.3A, VGS=0V	$V_{SD}$			1.5	V
Continuous Diode Forward Current	$I_S$			0.2	A
Pulsed Diode Forward Current	$I_{SM}$			0.53	A

Typical Performance Characteristics

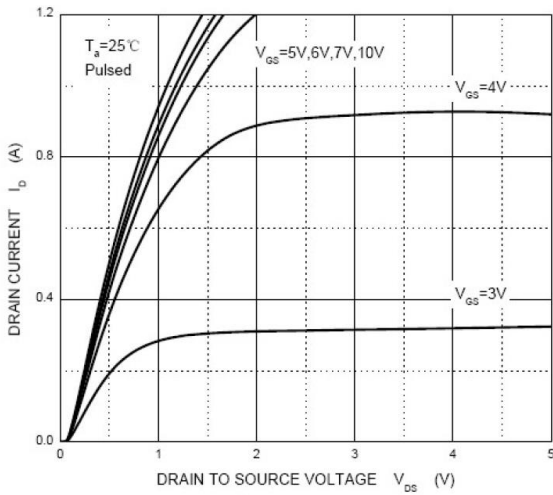


Figure 1. Output Characteristics

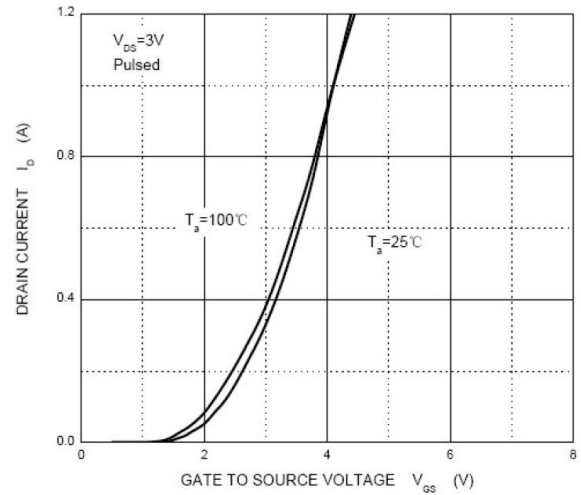


Figure 2. Transfer Characteristics

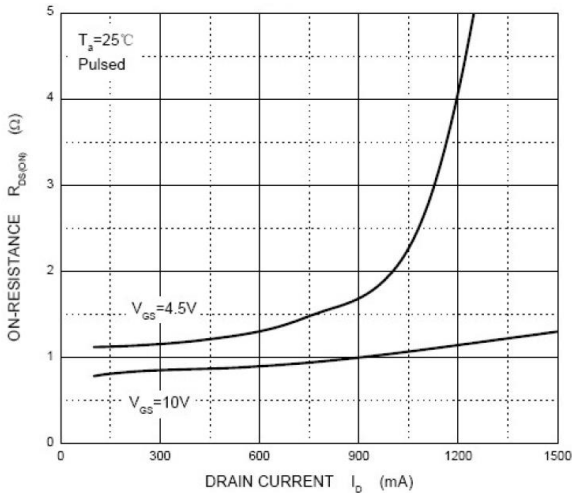


Figure 3.  $R_{DS(ON)}$  —  $I_D$

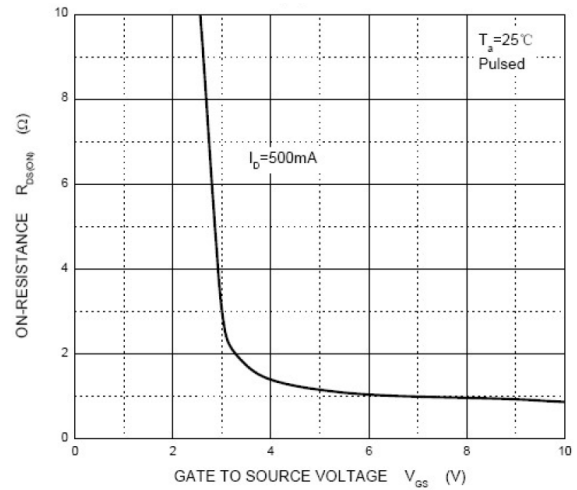


Figure 4.  $R_{DS(ON)}$  —  $V_{GS}$

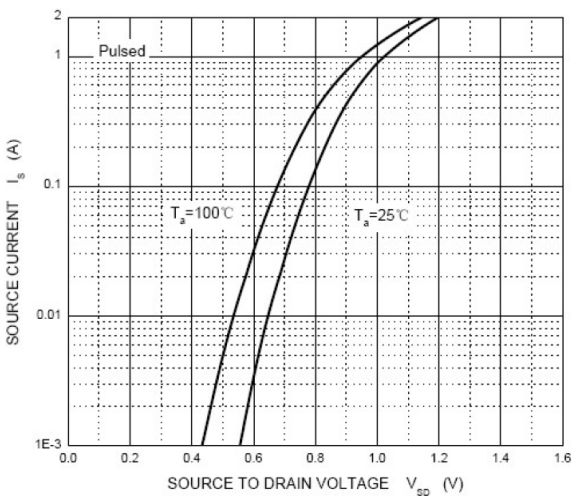


Figure 5.  $I_S$  —  $V_{SD}$

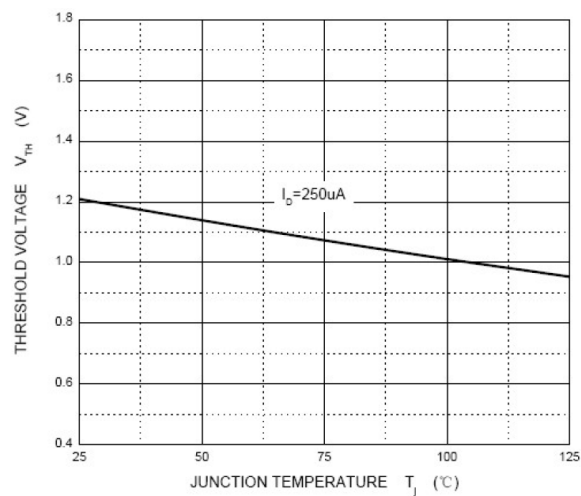
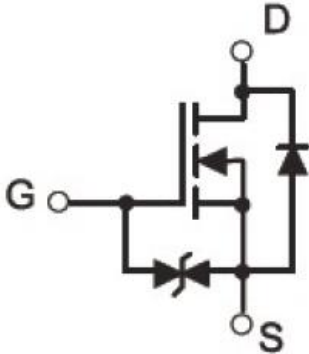
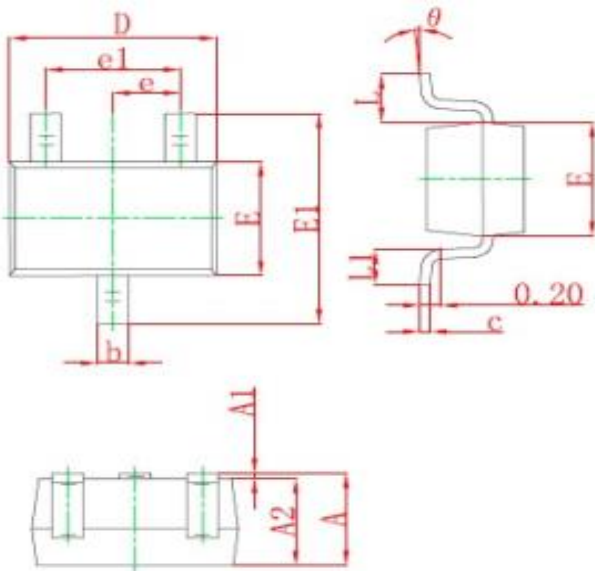


Figure 6. Threshold Voltage

·Circuit diagram



·Package outlines : Dimensions in (mm)



DIM	MILLIMETERS	
	MIN	MAX
A	0.90	1.10
A1	0.00	0.10
A2	0.90	1.00
b	0.20	0.40
c	0.08	0.15
D	2.00	2.20
E	1.15	1.35
E1	2.15	2.45
e	0.65 Typ.	
e1	1.20	1.40
L	0.525 Ref.	
L1	0.26	0.46
$\theta$	0°	8°

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