30V N-Channel MOSFET

Features

- Low on-resistance
- Fast switching speed
- Low voltage drive makes this device ideal for Portable equipment
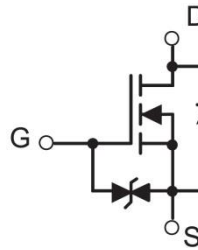- Easily designed drive circuits
- Easy to parallel

Applications
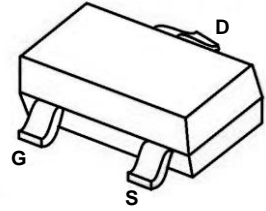
- Interfacing , Switching

MOSFET Product Summary

V_{DSS}	$R_{DS(ON)}$ @V_{GS}=10V	$R_{DS(ON)}$ @V_{GS}=4.5V	I_D
30V	3Ω	4Ω	100mA

Package and Pin Configuration

Circuit diagram   **SOT-523**

Marking Information
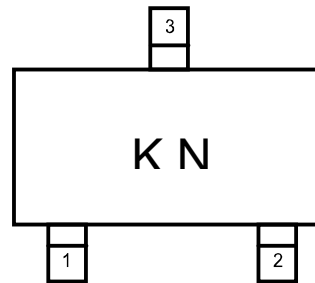
KN= device marking code

### Absolute Maximum Ratings (T_A=25°C unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	30	V
Gate-Source Voltage	V_{GS}	±20	V
Continuous Drain Current	I_D	100	mA
Power Dissipation	P_D	0.2	W
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	833	℃/W
Junction Temperature	T_J	150	℃
Storage Temperature	T_{STG}	-55~ +150	℃

Electrical characteristics (T_A=25 ℃, unless otherwise noted)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-source breakdown voltage	$V_{(BR)DSS}$	V_{GS} = 0V, I_D =250μA	30			V
Zero gate voltage drain current	I_{DSS}	V_{DS} =30V, V_{GS} = 0V			1	μA
Gate-body leakage current	I_{GSS}	V_{GS} =±20V, V_{DS} = 0V			±5	μA
Gate threshold voltage	$V_{GS(th)}$	V_{DS} = V_{GS}, I_D =250μA	0.8	1	1.45	V
Drain-source on-resistance	$R_{DS(on)}$	V_{GS} =10V, I_D =500mA		1.5	3	Ω
		V_{GS} =4.5V, I_D =200mA		1.8	4	
Forward transconductance	g_{FS}	V_{DS}=3V, I_D=10mA	20			mS
Dynamic characteristics						
Input Capacitance	Ciss			13		pF
Output Capacitance	Coss	V_{DS}=5V, V_{GS}=0V, f=1MHz		9		pF
Reverse Transfer Capacitance	Crss			4		pF
Switching Characteristics						
Turn-on delay time	$t_{d(on)}$			15		ns
Rise time	tr	V_{GS} =5V, V_{DD} =5V, I_D =10mA,		35		ns
Turn-off delay time	$t_{d(off)}$	Rg=10Ω, R_L=500Ω,		80		ns
Fall time	tf			80		ns

Typical Electrical and Thermal Characteristics

Output Characteristics

Transfer Characteristics

$R_{DS(ON)}$ —— I_D

$R_{DS(ON)}$ —— V_{GS}

I_S —— V_{SD}
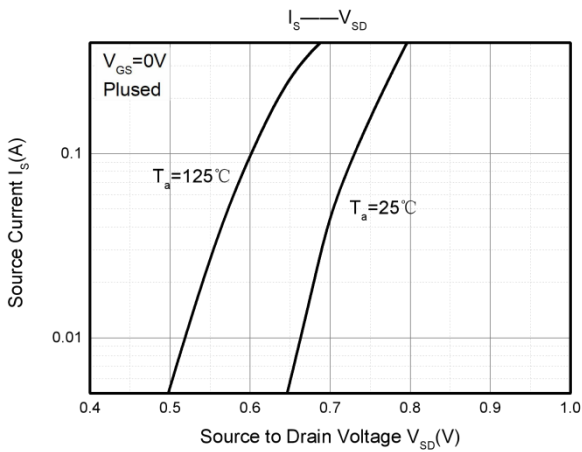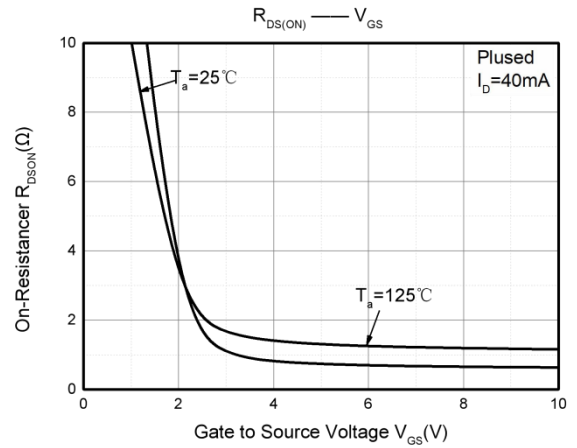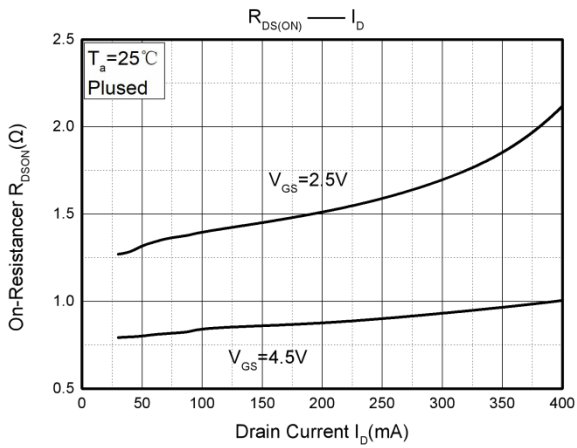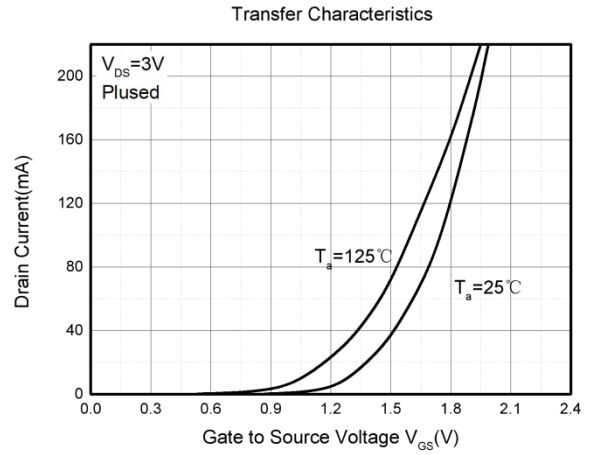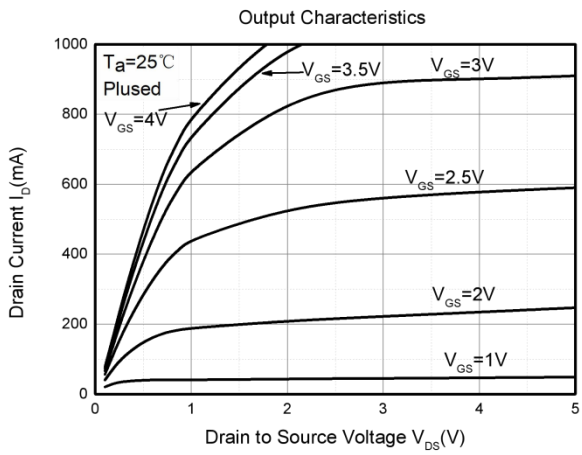
SOT-523 Package Outline Drawing
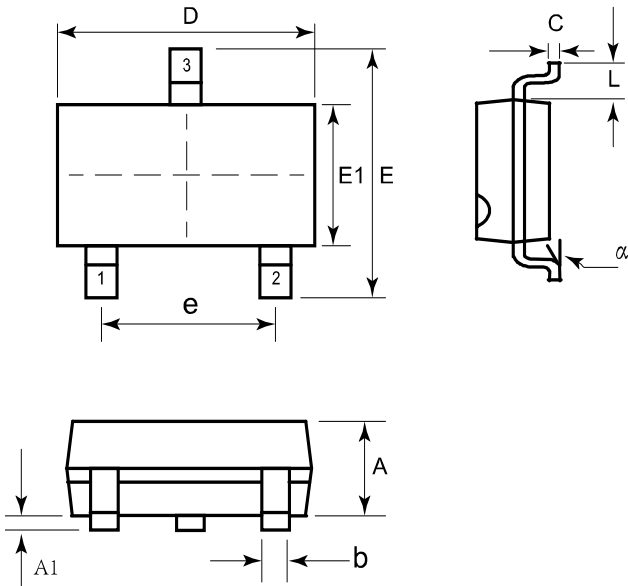
SYM	DIMENSIONS					
	INCHES			MILLIMETERS		
	MIN	NOM	MAX	MIN	NOM	MAX
A	0.023	0.030	0.031	0.60	0.75	0.80
A1	0.00		0.004	0.00		0.10
b	0.005		0.012	0.15		0.30
C	0.003		0.008	0.10		0.20
D	0.059	0.063	0.067	1.50	1.60	1.70
E	0.057	0.063	0.069	1.45	1.60	1.75
E1	0.029	0.031	0.033	0.75	0.80	0.85
e	0.039 BSC			1.00 BSC		
L	0.009 BSC			0.22 BSC		
α	0°		8°	0°		8°

Suggested Land Pattern
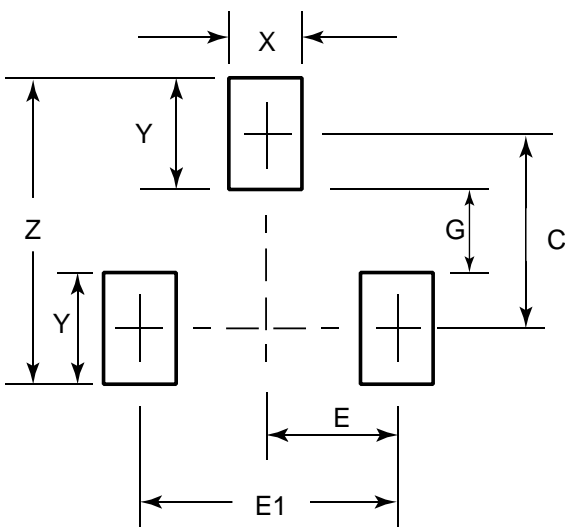
SYM	DIMENSIONS	
	MILLIMETERS	INCHES
C	1.40	0.055
E	0.50	0.020
E1	1.00	0.039
G	0.60	0.024
X	0.40	0.016
Y	0.80	0.031
Z	2.20	0.087