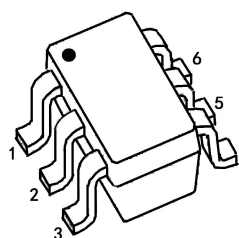


30V N-Channel Mosfet -30V P-Channel Mosfet

FEATURES

- N-Channel: 30V
 - $R_{DS(ON)} \leq 45m\Omega$ (30m Ω Typ)
@ $V_{GS}=10V$
 - $R_{DS(ON)} \leq 60m\Omega$ (40m Ω Typ)
@ $V_{GS}=4.5V$
- P-Channel: -30V
 - $R_{DS(ON)} \leq 90m\Omega$ (60m Ω Typ)
@ $V_{GS}=-10V$
 - $R_{DS(ON)} \leq 80m\Omega$ (120m Ω Typ)
@ $V_{GS}=-4.5V$

SOT-23-6L

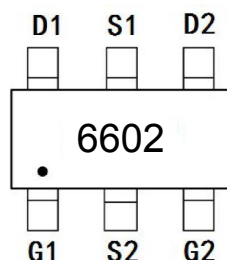


1: G1 3: G2 5: S1
2: S2 4: D2 6: D1

APPLICATIONS

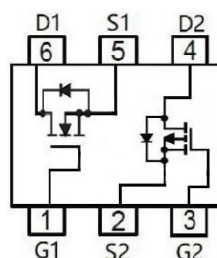
- Load Switch for Portable Devices
- Battery Switch

MARKING



6602 : Device code

N+P CHANNEL MOSFET



Absolute Maximum Ratings ($T_a=25^{\circ}C$ unless otherwise specified)

Parameter	Symbol	Value		Unit
		N-Channel	P-Channel	
Drain-Source Voltage	V_{DS}	30	-30	V
Gate-Source Voltage	V_{GS}	± 12	± 12	V
Continuous Drain Current	I_D	3.5	-2.7	A
Pulsed Drain Current	I_{DM}	20	-15	A
Power Dissipation	P_D	1.15		W
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	110		$^{\circ}C/W$
Junction Temperature	T_J	150		$^{\circ}C$
Storage Temperature	T_{STG}	-55~ +150		$^{\circ}C$

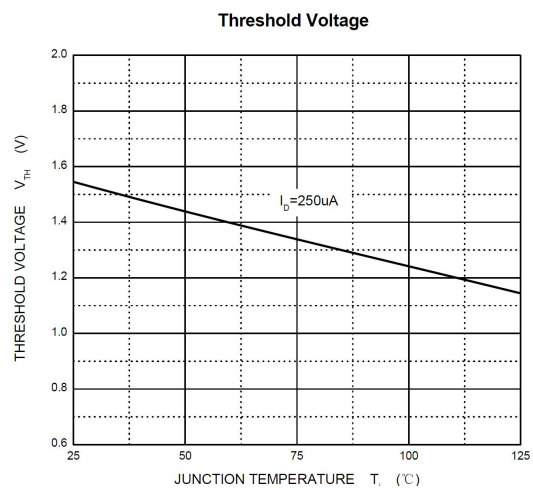
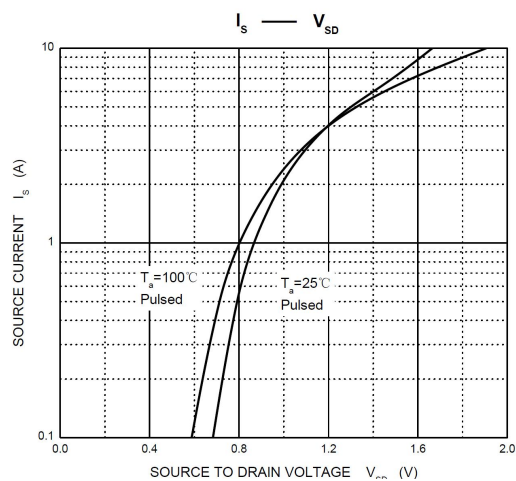
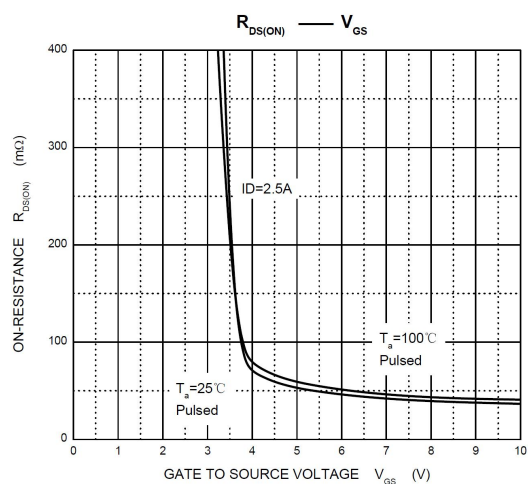
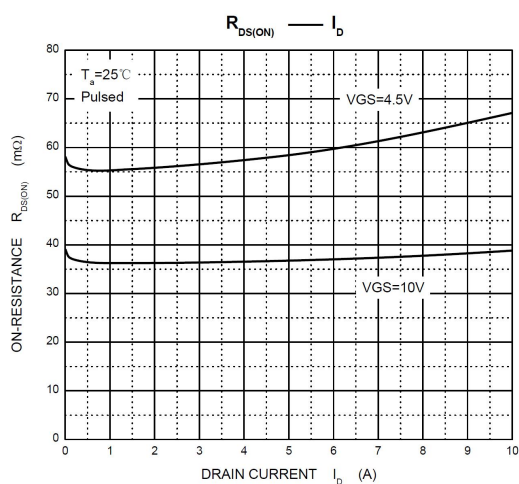
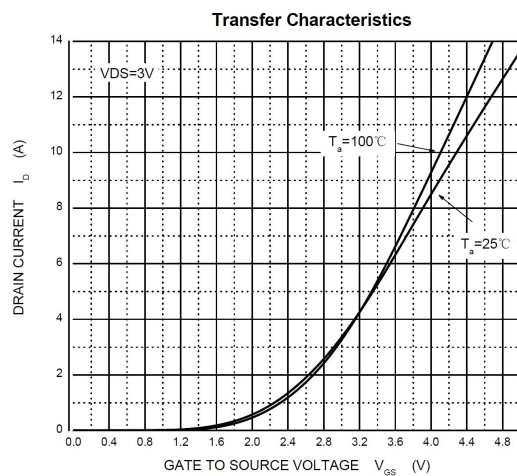
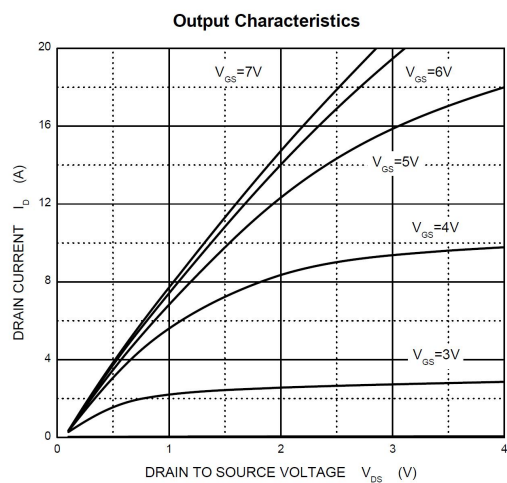
N-Channel Electrical Characteristics ($T_a=25^{\circ}\text{C}$ unless otherwise specified)

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Units
Off Characteristic						
V _{(BR)DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _D =250μA	30	-	-	V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =30V, V _{GS} = 0V, T _J = 25℃	-	-	1.0	μA
I _{GSS}	Gate to Body Leakage Current	V _{DS} =0V, V _{GS} = ±20V	-	-	±100	nA
On Characteristics						
V _{GS(th)}	Gate Threshold Voltage	V _{DS} = V _{GS} , I _D =250μA	1	1.5	2.2	V
R _{DS(on)}	Static Drain-Source on-Resistance	V _{GS} =10V, I _D =3.6A	-	30	45	Ω
		V _{GS} =4.5V, I _D =3.0A	-	40	60	Ω
Dynamic Characteristics note2						
C _{iss}	Input Capacitance	V _{DS} =15V, V _{GS} = 0V, f = 1.0MHz	-	390	-	pF
C _{oss}	Output Capacitance		-	67	-	pF
C _{rss}	Reverse Transfer Capacitance		-	41	-	pF
Q _g	Total Gate Charge	V _{DS} =15V, I _D =3.6A, V _{GS} =10V, f=1.0MHz	-	4.2	-	nC
Q _{gs}	Gate-Source Charge		-	1	-	nC
Q _{gd}	Gate-Drain(“Miller”) Charge		-	1.3	-	nC
Switching Characteristics note2						
t _{d(on)}	Turn-on Delay Time	V _{GS} =4.5V, V _{DS} =15V, R _G =6Ω ,R _L =3.6Ω	-	11	-	ns
t _r	Turn-on Rise Time		-	48	-	ns
t _{d(off)}	Turn-off Delay Time		-	14	-	ns
t _f	Turn-off Fall Time		-	9	-	ns
Drain-Source Diode Characteristics and Maximum Ratings						
I _S	Maximum Continuous Drain to Source Diode Forward Current		-	-	3.5	A
V _{SD}	Drain to Source Diode Forward Voltage	V _{GS} =0V , I _S =3.5A T _J =25℃	-	-	1.2	V

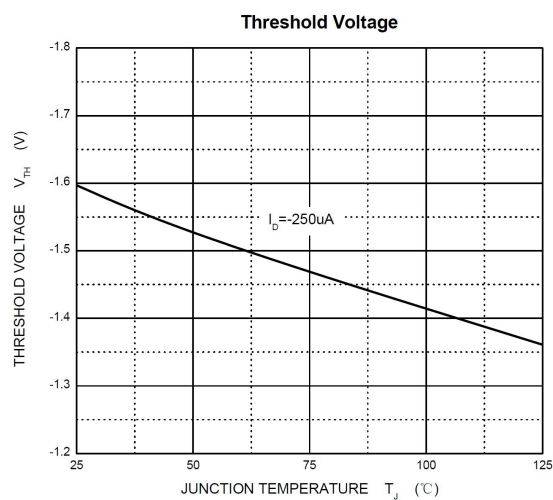
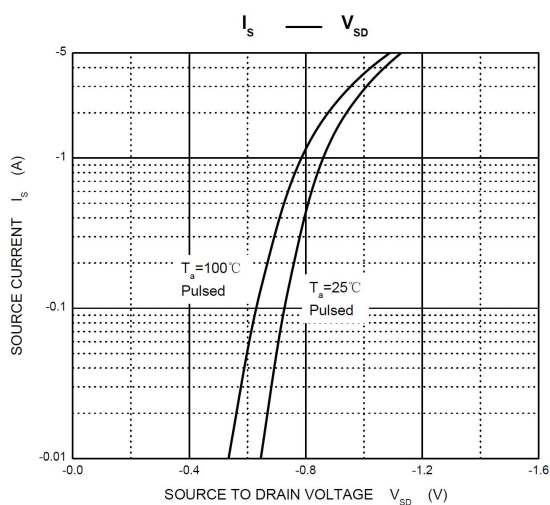
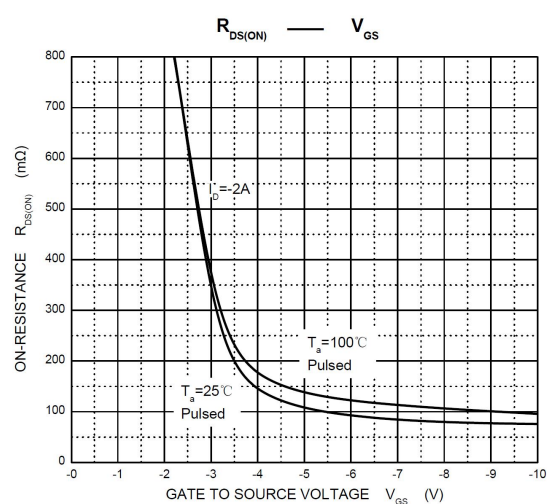
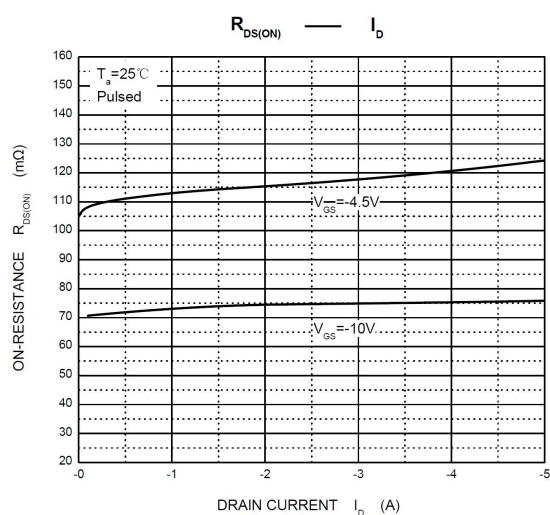
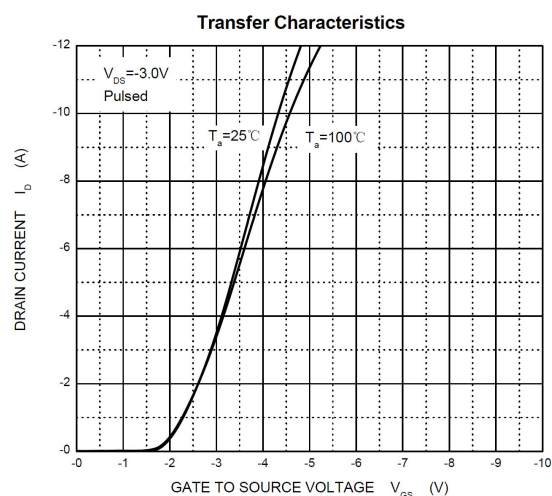
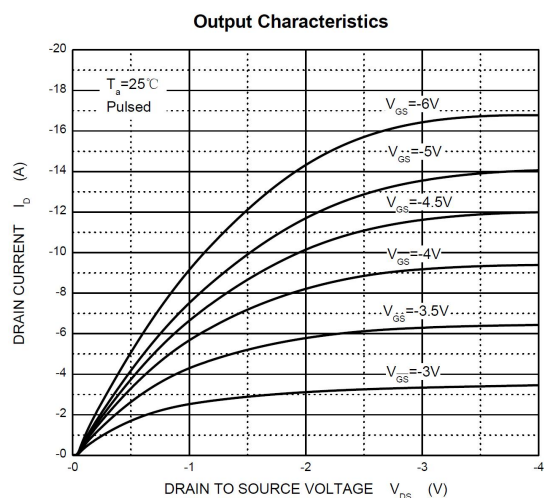
P-Channel Electrical Characteristics ($T_a=25^{\circ}\text{C}$ unless otherwise specified)

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Units
Off Characteristic						
V _{(BR)DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _D = -250μA	-30	-	-	V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} = -30V, V _{GS} =0V,	-	-	-1	μA
I _{GSS}	Gate to Body Leakage Current	V _{DS} =0V, V _{GS} = ±20V	-	-	±100	nA
On Characteristics						
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _D = -250μA	-1.0	-1.5	-2.4	V
R _{DS(on)}	Static Drain-Source on-Resistance	V _{GS} = -10V, I _D = -3A	-	60	90	mΩ
		V _{GS} = -4.5V, I _D = -2A	-	80	120	
Dynamic Characteristics						
C _{iss}	Input Capacitance	V _{DS} = -15V, V _{GS} =0V, f=1.0MHz	-	375	-	pF
C _{oss}	Output Capacitance		-	63	-	pF
C _{rss}	Reverse Transfer Capacitance		-	47	-	pF
Q _g	Total Gate Charge	V _{DS} = -15V, I _D = -3A, V _{GS} = -10V	-	4.2	-	nC
Q _{gs}	Gate-Source Charge		-	1	-	nC
Q _{gd}	Gate-Drain(“Miller”) Charge		-	1.3	-	nC
Switching Characteristics						
t _{d(on)}	Turn-on Delay Time	V _{DD} = -15V, I _D = -1A, V _{GS} = -10V, R _{GEN} =2.5Ω RL=15Ω	-	14	-	ns
t _r	Turn-on Rise Time		-	61	-	ns
t _{d(off)}	Turn-off Delay Time		-	19	-	ns
t _f	Turn-off Fall Time		-	10	-	ns
Drain-Source Diode Characteristics and Maximum Ratings						
I _S	Maximum Continuous Drain to Source Diode Forward Current		-	-	-2.7	A
V _{SD}	Drain to Source Diode Forward Voltage	V _{GS} =0V, I _S = -2.7A	-	-0.8	-1.2	V

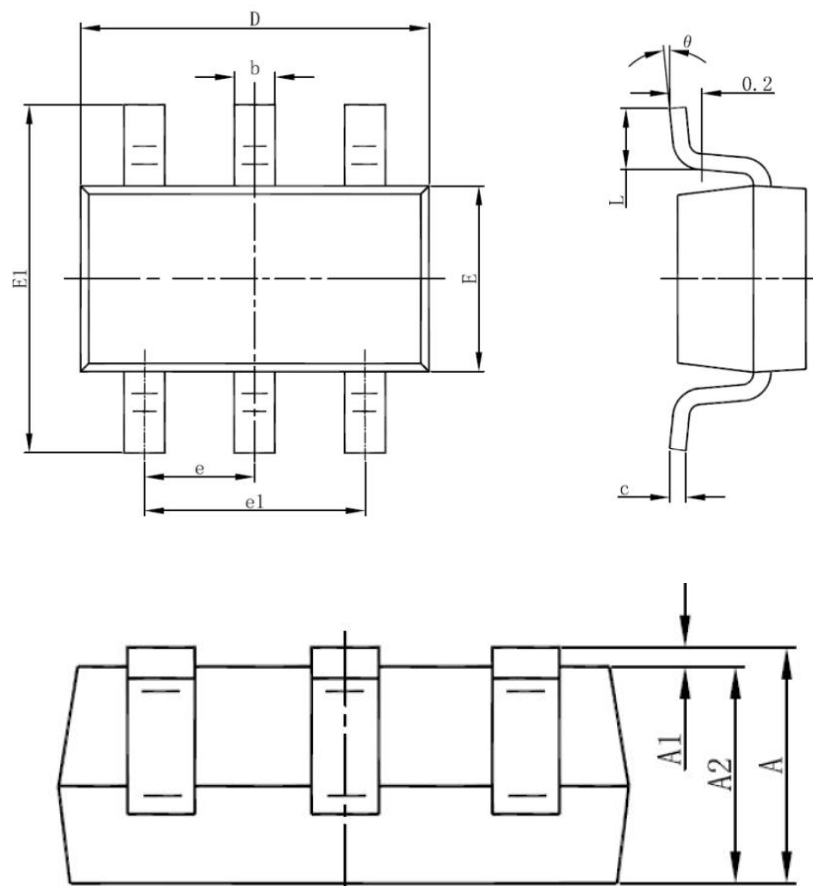
N-Channel Typical Performance Characteristics



P-Channel Typical Performance Characteristics



SOT-23-6L PACKAGE OUTLINE DRAWING



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	1.050	1.250	0.041	0.049
A1	0.000	0.100	0.000	0.004
A2	1.050	1.150	0.041	0.045
b	0.300	0.500	0.012	0.020
c	0.100	0.200	0.004	0.008
D	2.820	3.020	0.111	0.119
E	1.500	1.700	0.059	0.067
E1	2.650	2.950	0.104	0.116
e	0.950 TYP.		0.037 TYP.	
e1	1.800	2.000	0.071	0.079
L	0.300	0.600	0.012	0.024
θ	0°	8°	0°	8°