

-12V P-Channel Mosfet

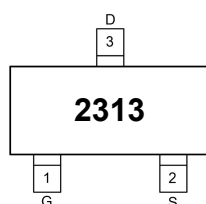
FEATURES

- $R_{DS(ON)} \leq 32m\Omega$ (29m Ω Typ.)
@ $V_{GS} = -4.5V$
- $R_{DS(ON)} \leq 40m\Omega$ (36.5m Ω Typ.)
@ $V_{GS} = -2.5V$

APPLICATIONS

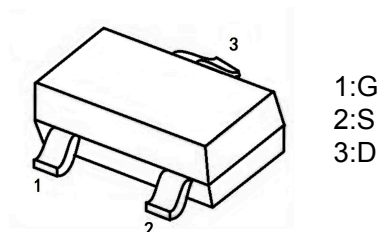
- Battery management
- Load Switch
- Portable appliances

MARKING

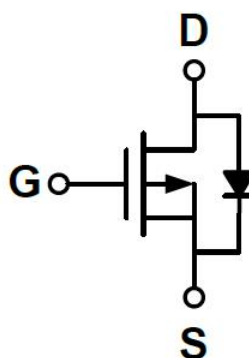


Other marks: "S5" or "2305"

SOT-23



P-CHANNEL MOSFET



Maximum ratings ($T_a = 25^\circ C$ unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	-12	V
Gate-Source Voltage	V_{GS}	± 10	
Continuous Drain Current	I_D	-6	A
Pulsed Drain Current	I_{DM}	-20	
Maximum Power Dissipation	P_D	1.13	W
Thermal Resistance from Junction to Ambient($t \leq 5s$)	$R_{\theta JA}$	110	$^\circ C/W$
Junction Temperature	T_J	150	$^\circ C$
Storage Temperature	T_{stg}	-55 ~ +150	

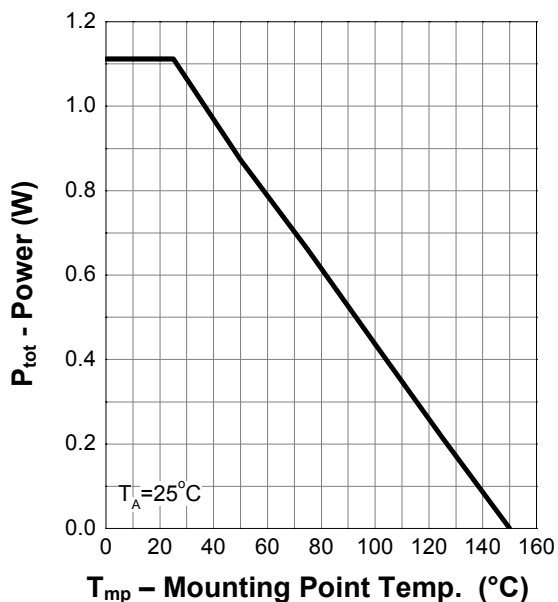
MOSFET ELECTRICAL CHARACTERISTICS (Ta=25 °C unless otherwise specified)

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
On Characteristics						
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} = 0 V, I _{DS} = -250 μA	-12	-18		V
I _{DSS}	Drain Leakage Current	V _{DS} = -12 V, V _{GS} = 0 V			-1	μA
I _{GSS}	Gate Leakage Current	V _{GS} = ±10V, V _{DS} = 0 V			±100	nA
Off Characteristics						
V _{GS(th)}	Gate Threshold Voltage	V _{DS} = V _{GS} , I _{DS} = -250 μA	-0.4	-0.7	-1.0	V
R _{DS(ON)}	On-State Resistance(note1)	V _{GS} = -4.5 V, I _{DS} = -5 A		29	32	mΩ
		V _{GS} = -2.5 V, I _{DS} = -4 A		36.5	40	
Dynamic Characteristicsb(note2)						
C _{iss}	Input Capacitance	V _{GS} = 0 V, V _{DS} = -6 V Frequency = 1 MHz		1340		pF
C _{oss}	Output Capacitance			145		
C _{rss}	Reverse Transfer Capacitance			105		
Q _g	Total Gate Charge	V _{GS} =- 4.5 V, V _{DS} = -6 V, I _{DS} = -4A		16.1		nC
Q _{gs}	Gate-Source Charge			1.8		
Q _{gd}	Gate-Drain Charge			3.8		
Switching Characteristics						
t _{d(on)}	Turn-on Delay Time	V _{DS} =-6 V, V _{GEN} = -4.5 V, R _G = 1 Ω,I _{DS} = -4A		28		ns
t _r	Turn-on Rise Time			25		
t _{d(off)}	Turn-off Delay Time			48		
t _f	Turn-off Fall Time			22		
Drain-Source Diode Characteristics and Maximum Ratings						
V _{SD}	Diode Forward Voltage	I _{SD} = -0.5A, V _{GS} = 0 V		-0.7	-1.3	V

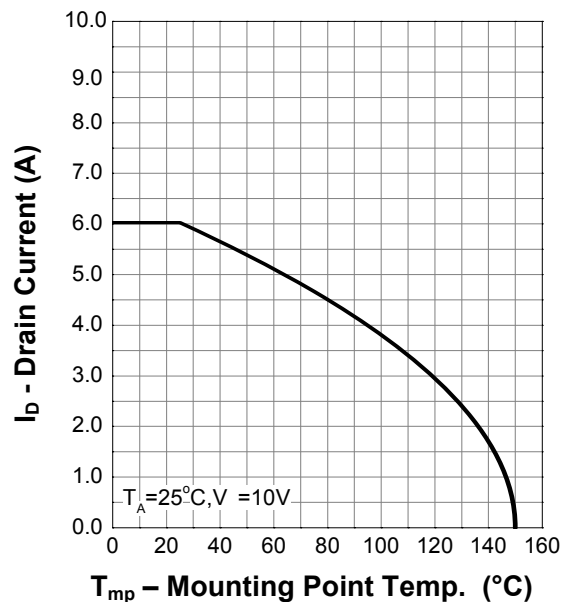
Notes : 1. Pulse test; pulse width≤300μs, duty cycle≤2%.
2. Guaranteed by design, not subject to production testing.

Typical Performance Characteristics

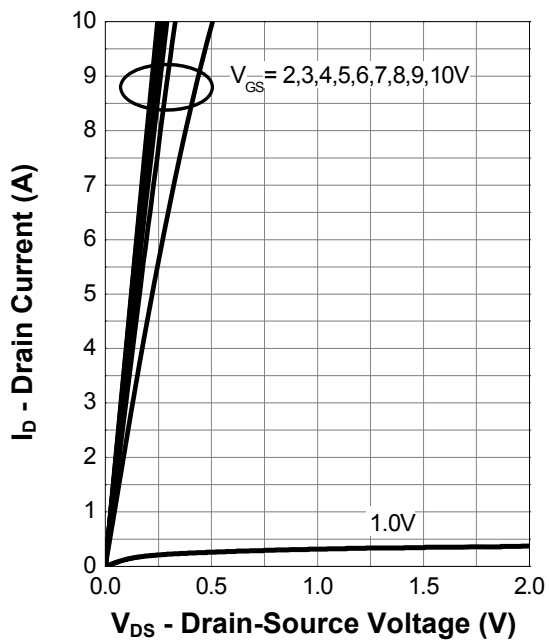
Power Capability



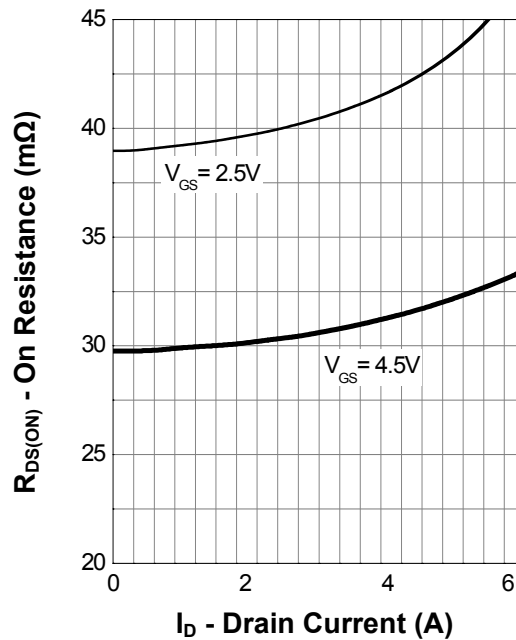
Current Capability



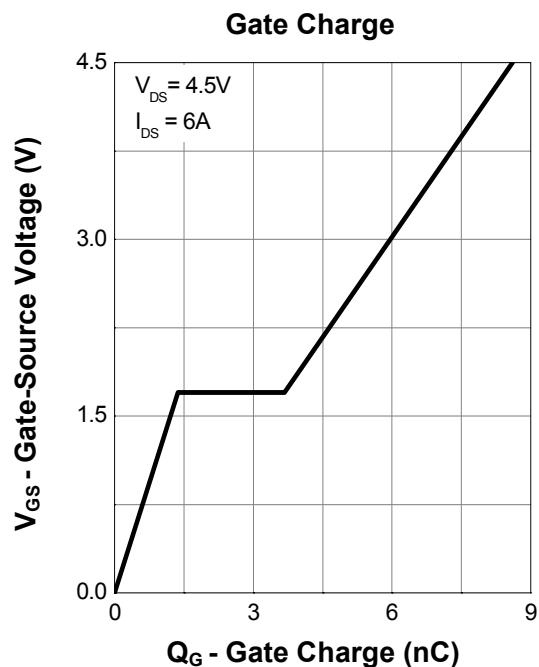
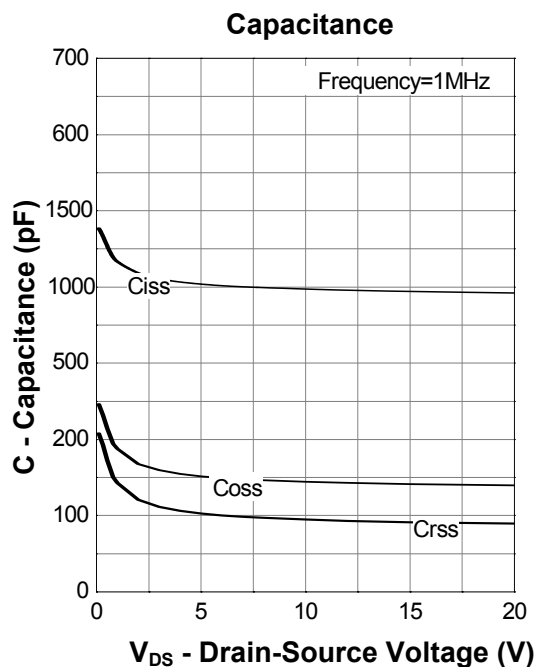
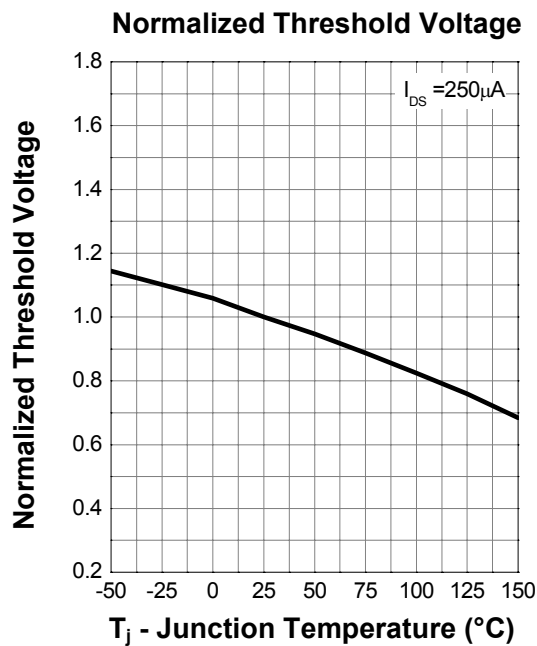
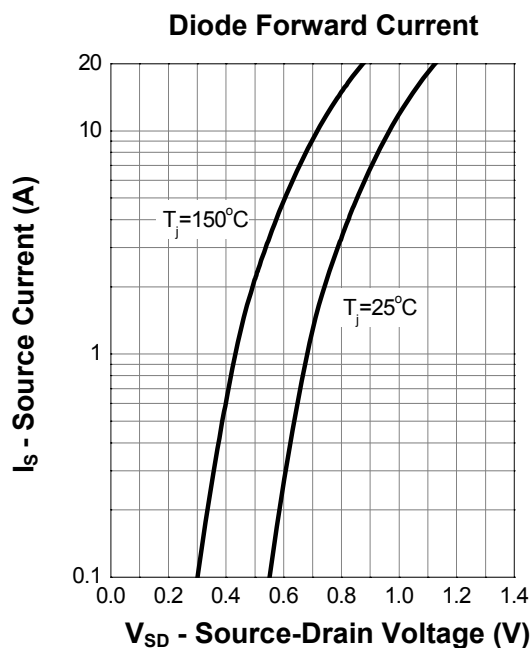
Output Characteristics



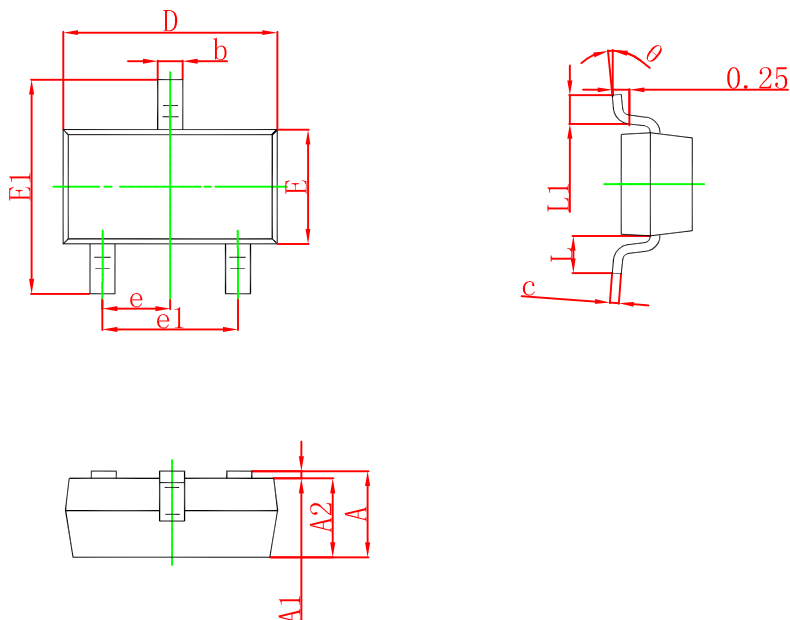
On Resistance



Typical Performance Characteristics



SOT-23 PACKAGE OUTLINE DRAWING



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.900	1.150	0.035	0.045
A1	0.000	0.100	0.000	0.004
A2	0.900	1.050	0.035	0.041
b	0.300	0.500	0.012	0.020
c	0.080	0.150	0.003	0.006
D	2.800	3.000	0.110	0.118
E	1.200	1.400	0.047	0.055
E1	2.250	2.550	0.089	0.100
e	0.950 TYP		0.037 TYP	
e1	1.800	2.000	0.071	0.079
L	0.550 REF		0.022 REF	
L1	0.300	0.500	0.012	0.020
θ	0°	8°	0°	8°