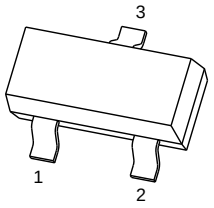
GP3401

30V P-Channel MOSFET

Product Summary

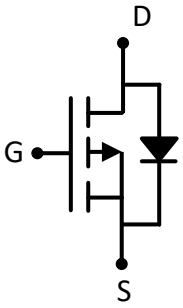
$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
-30V	43mΩ@-10V	-4.2A
	52mΩ@-4.5V	
	72mΩ@-2.5V	

SOT-23



1. GATE
2. SOURCE
3. DRAIN

Schematic diagram



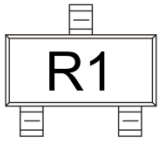
Feature

- TrenchFET Power MOSFET
- Exceptional on-resistance and maximum DC current capability

Application

- DC/DC Converter
- Load Switch for Portable Devices
- Battery Switch

MARKING:



ABSOLUTE MAXIMUM RATINGS (T_a=25℃ unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	-30	V
Gate-Source Voltage	V_{GS}	±12	V
Continuous Drain Current	I_D	-4.2	A
Power Dissipation	P_D	0.35	W
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	357	℃/W
Junction Temperature	T_J	150	℃
Storage Temperature	T_{STG}	-55~ +150	℃

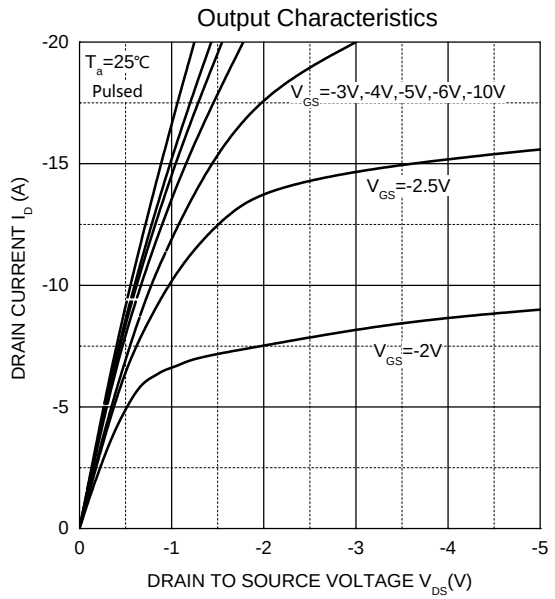
MOSFET ELECTRICAL CHARACTERISTICS(T_a=25℃ unless otherwise noted)

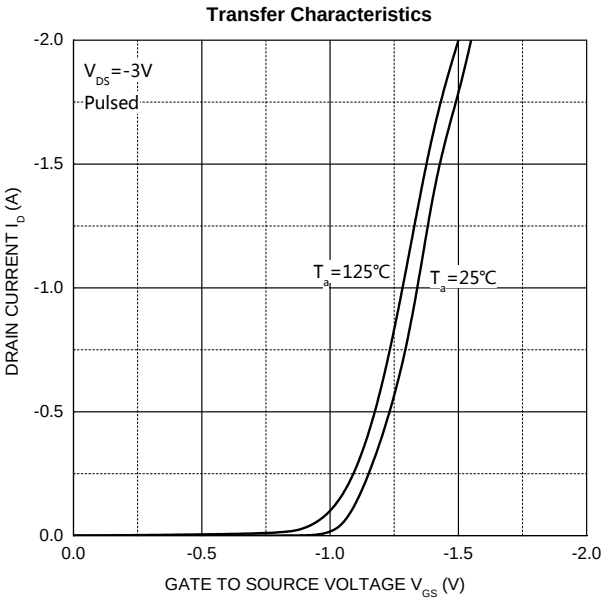
Parameter	Symbol	Test Condition	Min	Type	Max	Unit
Static Characteristics						
Drain-source breakdown voltage	$V_{(BR)DSS}$	V_{GS} = 0V, I_D =-250μA	-30			V
Zero gate voltage drain current	I_{DSS}	V_{DS} =-24V,V_{GS} = 0V			-1	μA
Gate-body leakage current	I_{GSS}	V_{GS} =±12V, V_{DS} = 0V			±100	nA
Gate threshold voltage	$V_{GS(th)}$	V_{DS} =V_{GS}, I_D =-250μA	-0.6	-0.9	-1.3	V
Drain-source on-resistance(1)	$R_{DS(on)}$	V_{GS} =-10V, I_D =-4.2A		43	65	mΩ
		V_{GS} =-4.5V, I_D =-4A		52	75	
		V_{GS} =-2.5V, I_D =-1A		72	90	
Forward tranconductance(1)	g_{FS}	V_{DS} =-5V, I_D =-4.2A		10		S
Dynamic characteristics(2)						
Input Capacitance	C_{iss}	V_{DS} =-15V,V_{GS} =0V,f =1MHz		954		pF
Output Capacitance	C_{oss}			115		
Reverse Transfer Capacitance	C_{rss}			77		
Switching characteristics(2)						
Total Gate Charge	Q_g	V_{DS} = -15V, V_{GS} = -10V, I_D = -4.2A		17		nC
Gate-source Charge	Q_{gs}			1.6		
Gate-drain Charge	Q_{gd}			2.6		
Turn-on delay time	$t_{d(on)}$	V_{GS}=-10V,V_{DS}=-15V, R_L=3.6Ω,R_{GEN}=6Ω			6.3	ns
Turn-on rise time	t_r				3.2	
Turn-off delay time	$t_{d(off)}$				38.2	
Turn-off fall time	t_f				12	
Source-Drain Diode characteristics						
Diode forward current	I_S				-2	A
Diode pulsed forward current	I_{SM}				-25	A
Diode Forward voltage(1)	V_{DS}	V_{GS} =0V, I_S=-4.2A			-1.2	V

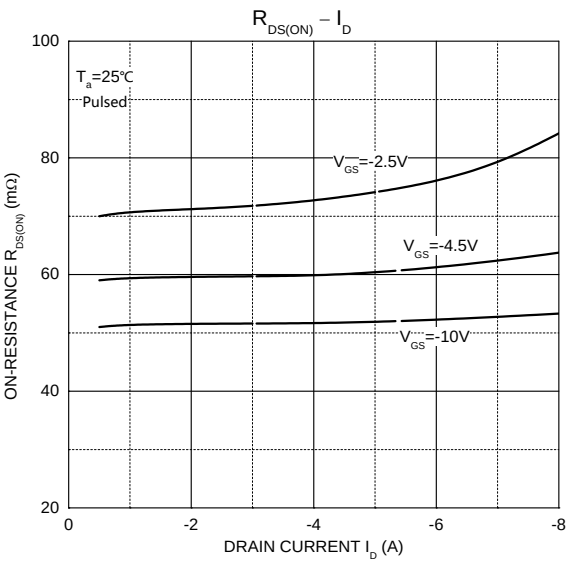
Notes:

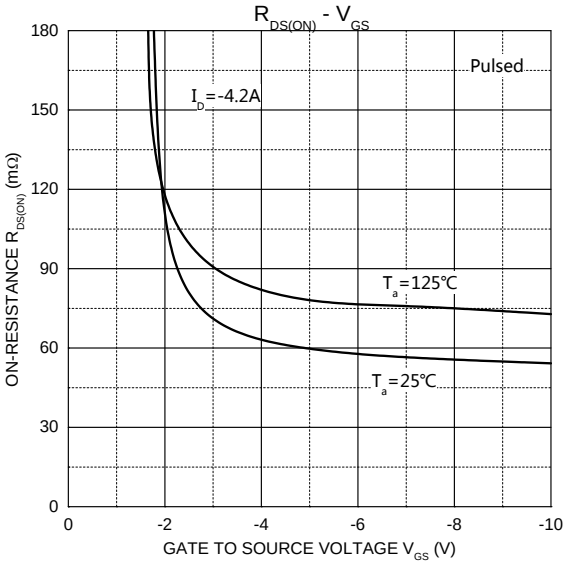
1. Pulse test; pulse width≤300μs, duty cycle≤2%.
2. Guaranteed by design, not subject to production testing.

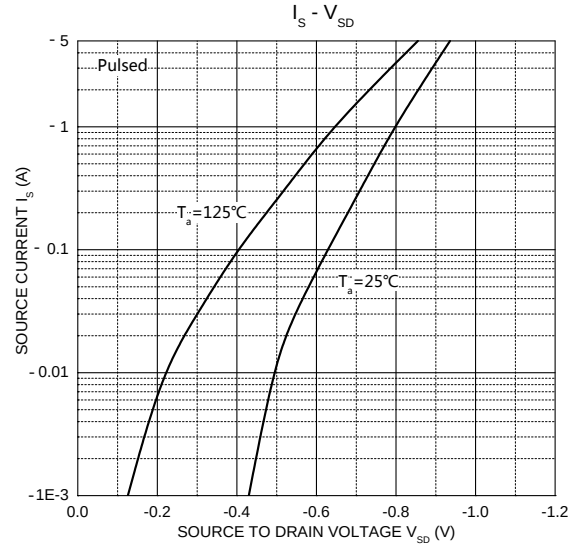
Typical Electrical and Thermal Characteristics

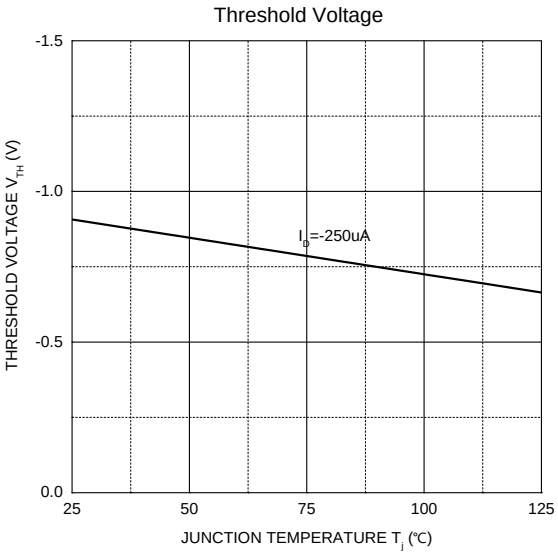




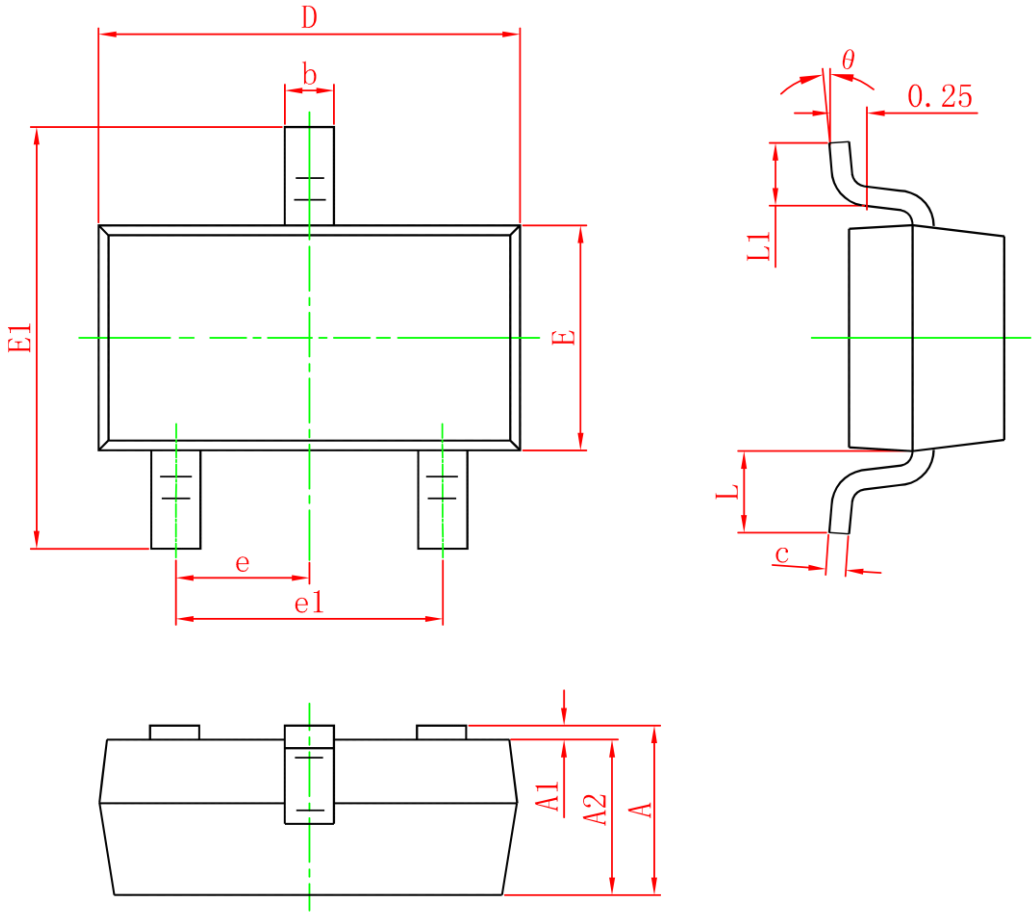








SOT-23 Package Information



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.900	1.150	0.035	0.045
A1	0	0.100	0	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	1.150	1.500	0.045	0.059
E1	2.250	2.650	0.089	0.104
e	0.950TYP		0.037TYP	
e1	1.800	2.000	0.071	0.079
L	0.550REF		0.022REF	
L1	0.300	0.500	0.012	0.020
θ	0°	8°	0°	8°