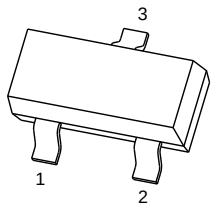
GP3401

30V P-Channel MOSFET

Product Summary

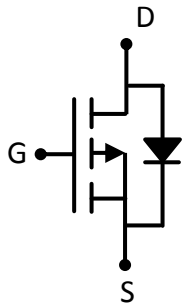
$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
-30V	50mΩ@-10V	-4.2A
	57mΩ@-4.5V	
	73mΩ@-2.5V	

SOT-23



1. GATE
2. SOURCE
3. DRAIN

Schematic diagram



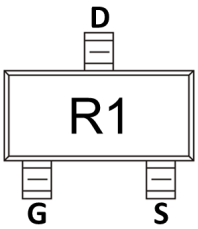
Feature

- Trench Technology Power MOSFET
- Low $R_{DS(ON)}$
- Low Gate Charge

Application

- Load Switch
- DC/DC Converter

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[1,4]	T_A = 25℃	I_D	-4.2	A
Pulsed Drain Current[2]		I_{DM}	-16	A
Power Dissipation[4,5]	T_A = 25℃	P_D	1.2	W
Thermal Resistance from Junction to Ambient[5]		$R_{\theta JA}$	104	℃/W
Thermal Resistance from Junction to Board		$R_{\theta JB}$	20	℃/W
Thermal Resistance from Junction to Case		$R_{\theta JC}$	5	℃/W
Junction Temperature		T_J	150	℃
Storage Temperature		T_{STG}	-55~ +150	℃

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

Parameter	Symbol	Test Condition	Min	Type	Max	Unit
Off 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
On Characteristics[3]						
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = -250μA	-0.6	-0.9	-1.3	V
Drain-source On-resistance	$R_{DS(on)}$	V_{GS} = -10V, I_D = -4.2A		50	65	mΩ
		V_{GS} = -4.5V, I_D = -4A		57	75	
		V_{GS} = -2.5V, I_D = -1A		73	90	
Dynamic Characteristics						
Input Capacitance	C_{iss}	V_{DS} = -15V, V_{GS} = 0V, f = 1MHz		828		pF
Output Capacitance	C_{oss}			68		
Reverse Transfer Capacitance	C_{rss}			57		
Gate Resistance	R_g	V_{DS} = 0V, V_{GS} = 0V, f = 1MHz		26.1		Ω
Switching Characteristics						
Total Gate Charge	Q_g	V_{DS} = -15V, V_{GS} = -10V, I_D = -3A		8		nC
Gate-source Charge	Q_{gs}			2		
Gate-drain Charge	Q_{gd}			1.5		
Turn-on Delay Time	$t_{d(on)}$	V_{DD} = -15V, V_{GS} = -10V, I_D = -3A, R_G = 3Ω		5.3		ns
Turn-on Rise Time	t_r			23		
Turn-off Delay Ttime	$t_{d(off)}$			20.8		
Turn-off Fall Time	t_f			31		
Source - Drain Diode Characteristics						
Diode Forward Voltage[3]	V_{SD}	V_{GS} = 0V, I_S = -1A			-1.2	V

Notes :

1.The maximum current rating is limited by package.

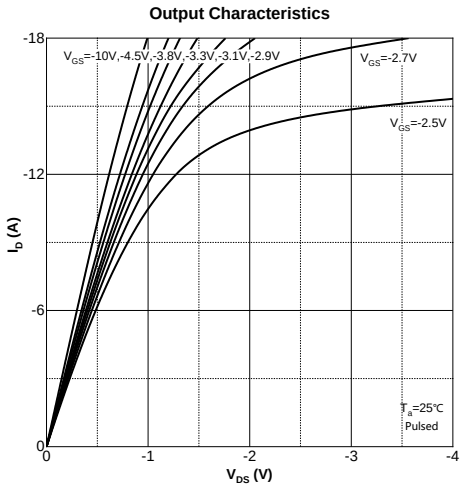
2.Pulse Test : Pulse Width ≤ 10μs, duty cycle ≤ 1%.

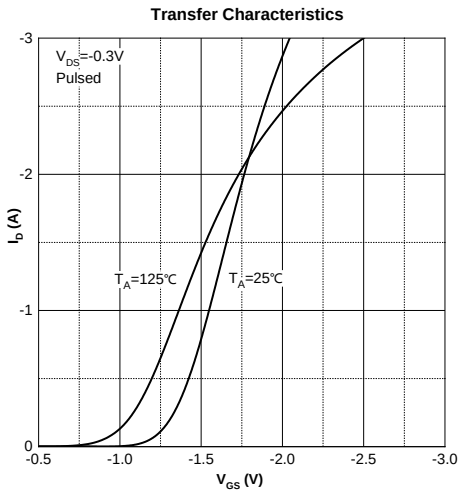
3.Pulse Test : Pulse Width ≤ 300μs, duty cycle ≤ 2%.

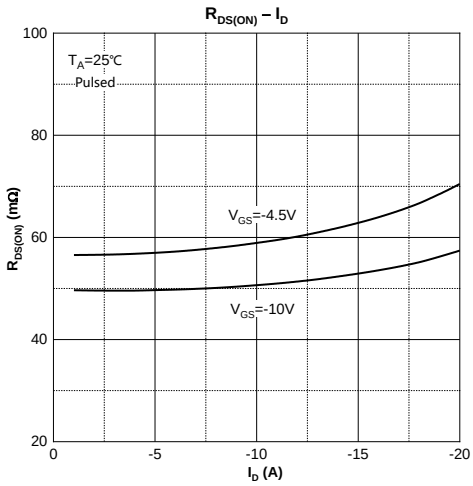
4.The power dissipation P_D is limited by $T_{J(MAX)}$ = 150°C.

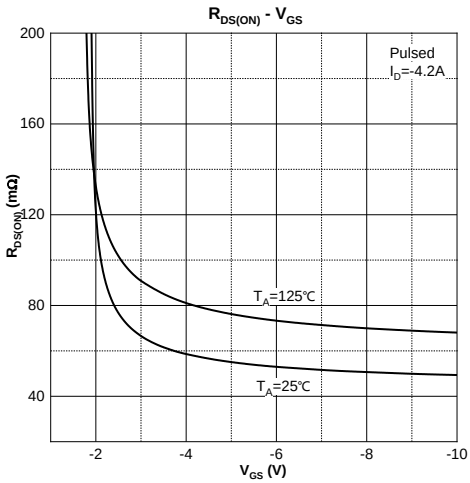
5.Device mounted on 1in^2 FR-4 board with 2oz. Copper, in a still air environment with T_A =25°C.

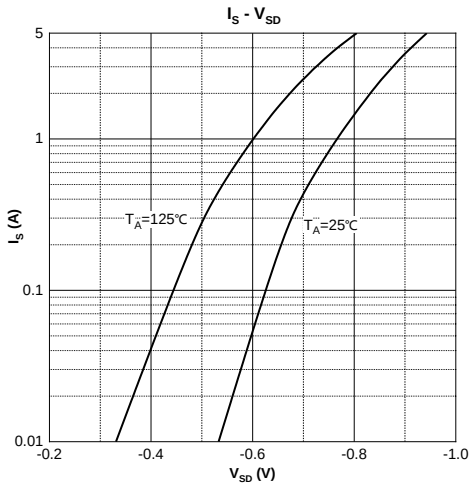
Typical Characteristics

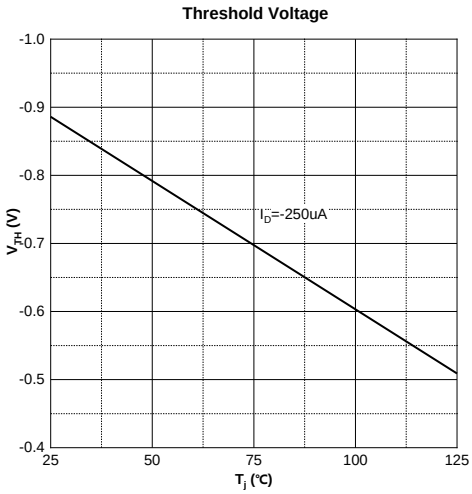




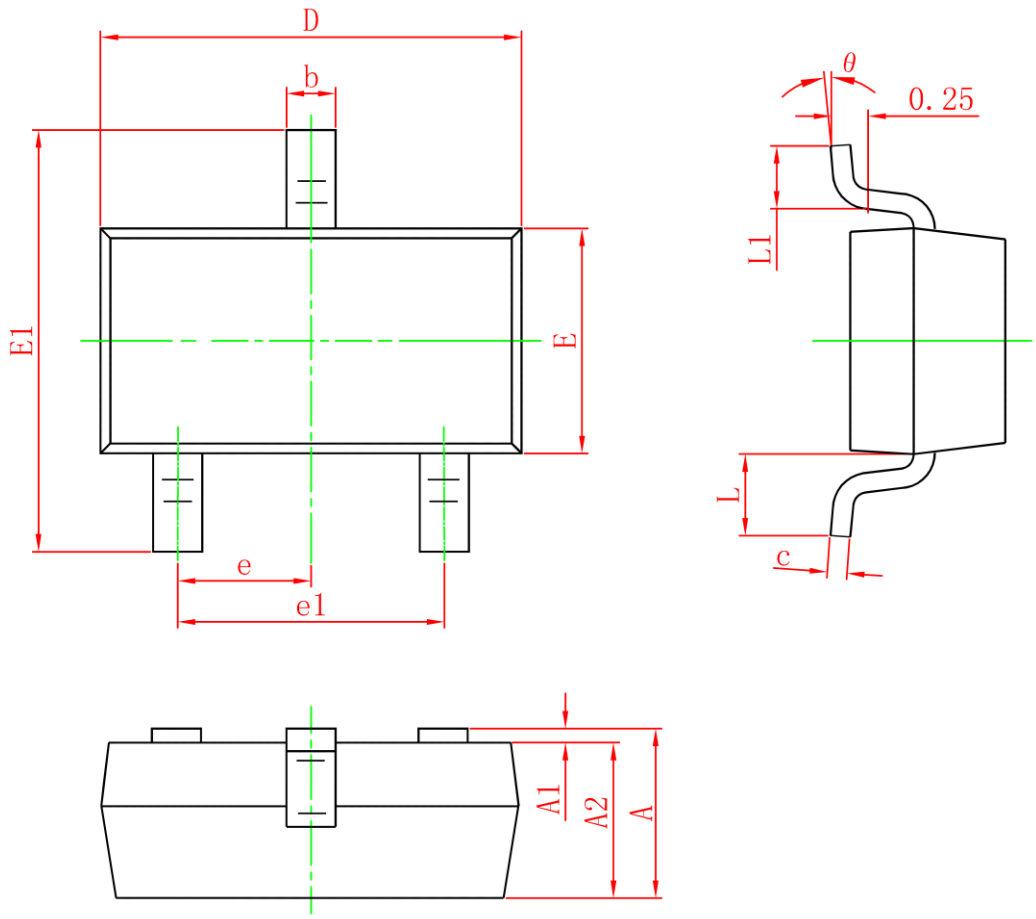








SOT-23 Package Information



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°