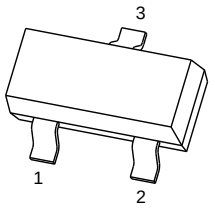
GP2333

16V P-Channel MOSFET

Product Summary

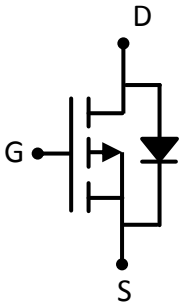
$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
-16V	19mΩ@-4.5V	-6A
	21mΩ@-3.7V	
	27mΩ@-2.5V	
	35mΩ@-1.8V	
	50mΩ@-1.5V	

SOT-23



1. GATE
2. SOURCE
3. DRAIN

Schematic diagram



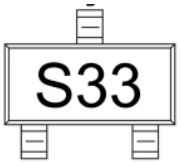
Feature

- TrenchFET Power MOSFET
- Excellent $R_{DS(on)}$ and Low Gate Charge

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}	-16	V
Gate-Source Voltage	V_{GS}	±8	V
Continuous Drain Current	I_D	-6[a]	A
Pulsed Drain Current (t=300μs)	I_{DM}	-20	A
Power Dissipation	P_D	0.35[b]	W
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	357[b]	℃/W
Junction Temperature	T_J	150	℃
Storage Temperature	T_{STG}	-55~ +150	℃

a. Device mounted on FR-4 substrate board, with minimum recommended pad layout, single side.

b. Device mounted on no heat sink.

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	-16			V
Zero gate voltage drain current	I_{DSS}	V_{DS} =-12V,V_{GS} = 0V			-1	μA
Gate-body leakage current	I_{GSS}	V_{GS} =±8V, V_{DS} = 0V			±0.1	μA
Gate threshold voltage[a]	$V_{GS(th)}$	V_{DS} =V_{GS}, I_D =-250μA	-0.4	-0.65	-1	V
Drain-source on-resistance[a]	$R_{DS(on)}$	V_{GS} =-4.5V, I_D =-5A		19	28	mΩ
		V_{GS} =-3.7V, I_D =-4.6A		21	32	
		V_{GS} =-2.5V, I_D =-4.3A		27	40	
		V_{GS} =-1.8V, I_D =-1A		35	63	
		V_{GS} =-1.5V, I_D =-0.5A		50	150	
Forward tranconductance[a]	g_{FS}	V_{DS} =-5V, I_D =-5A		18		S
Dynamic characteristics[b]						
Input Capacitance	C_{iss}	V_{DS} =-6V,V_{GS} =0V,f =1MHz		1275		pF
Output Capacitance	C_{oss}			255		
Reverse Transfer Capacitance	C_{rss}			236		
Gate resistance	R_g	f =1MHz	1.9		32	Ω
Total Gate Charge	Q_g	V_{DS} =-6V,V_{GS} =-4.5V,I_D=-5A		14	21	nC
Gate-Source Charge	Q_{gs}			2.3		
Gate-Drain Charge	Q_{gd}			3.6		
Turn-on delay time	$t_{d(on)}$	V_{DD}=-6V,V_{GEN}=-4.5V,I_D=-4A R_L=6Ω,R_{GEN}=1Ω		26	40	ns
Turn-on rise time	t_r			24	40	
Turn-off delay time	$t_{d(off)}$			45	75	
Turn-off fall time	t_f			20	35	
Source-Drain Diode characteristics						
Diode forward current	I_S	T_C=25℃			-1.4	A
Diode pulsed forward current	I_{SM}				-20	A
Diode Forward voltage[a]	V_{DS}	V_{GS} =0V, I_S=-4A			-1.2	V
Diode reverse recovery time[b]	t_{rr}	I_F=-4A,dI/dt=100A/μs			48	ns
Diode reverse recovery charge[b]	Q_{rr}				16	nC

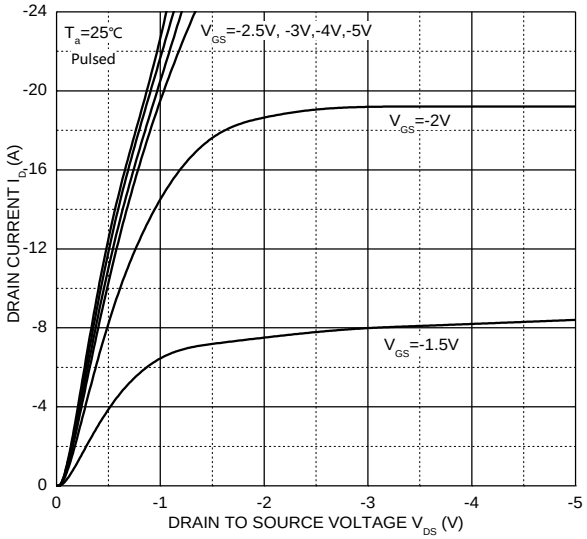
Notes:

a. Pulse test; pulse width≤300μs, duty cycle≤2%.

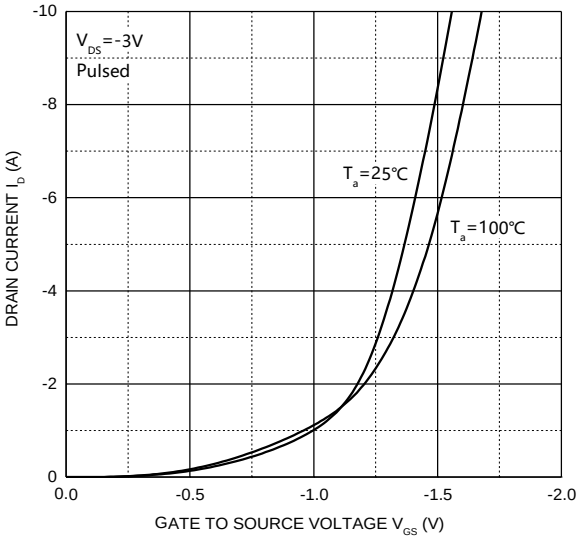
b. Guaranteed by design, not subject to production testing.

Typical Electrical and Thermal Characteristics

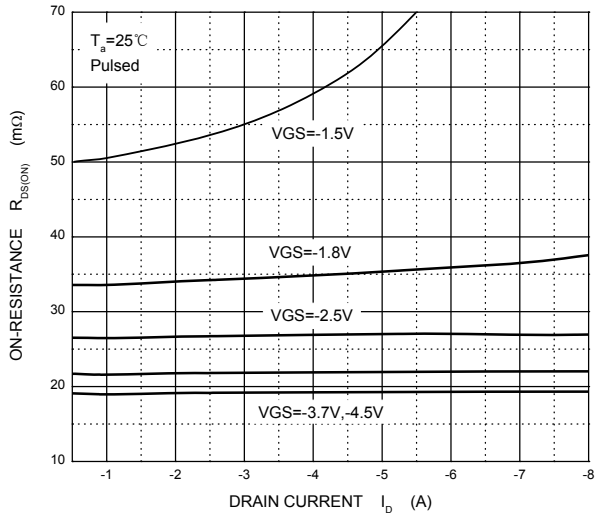
Output Characteristics



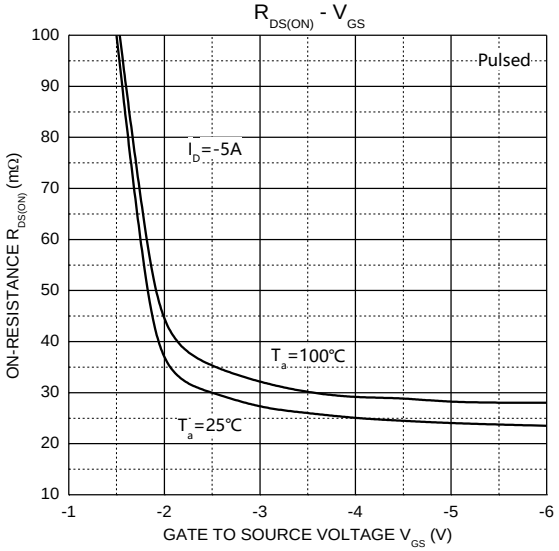
Transfer Characteristics



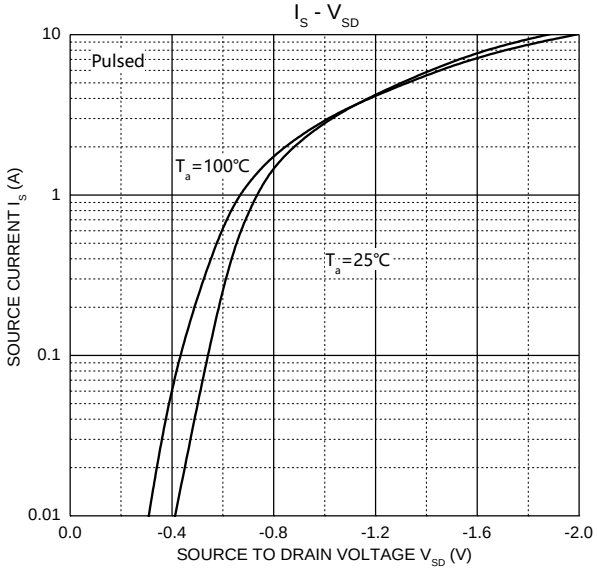
$R_{DS(ON)}$ —— I_D



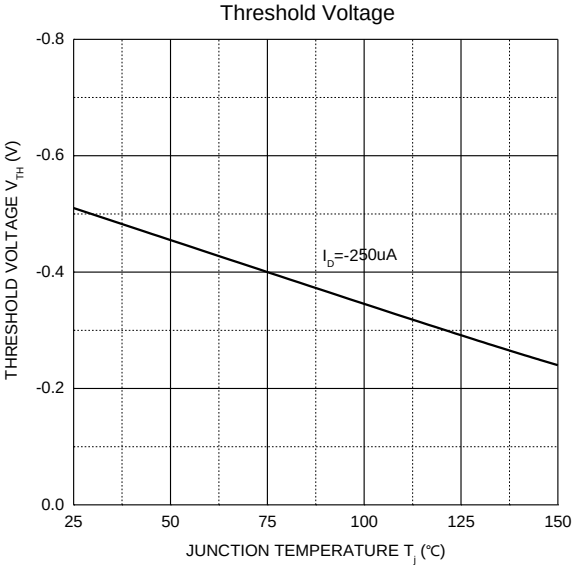
$R_{DS(ON)}$ - V_{GS}



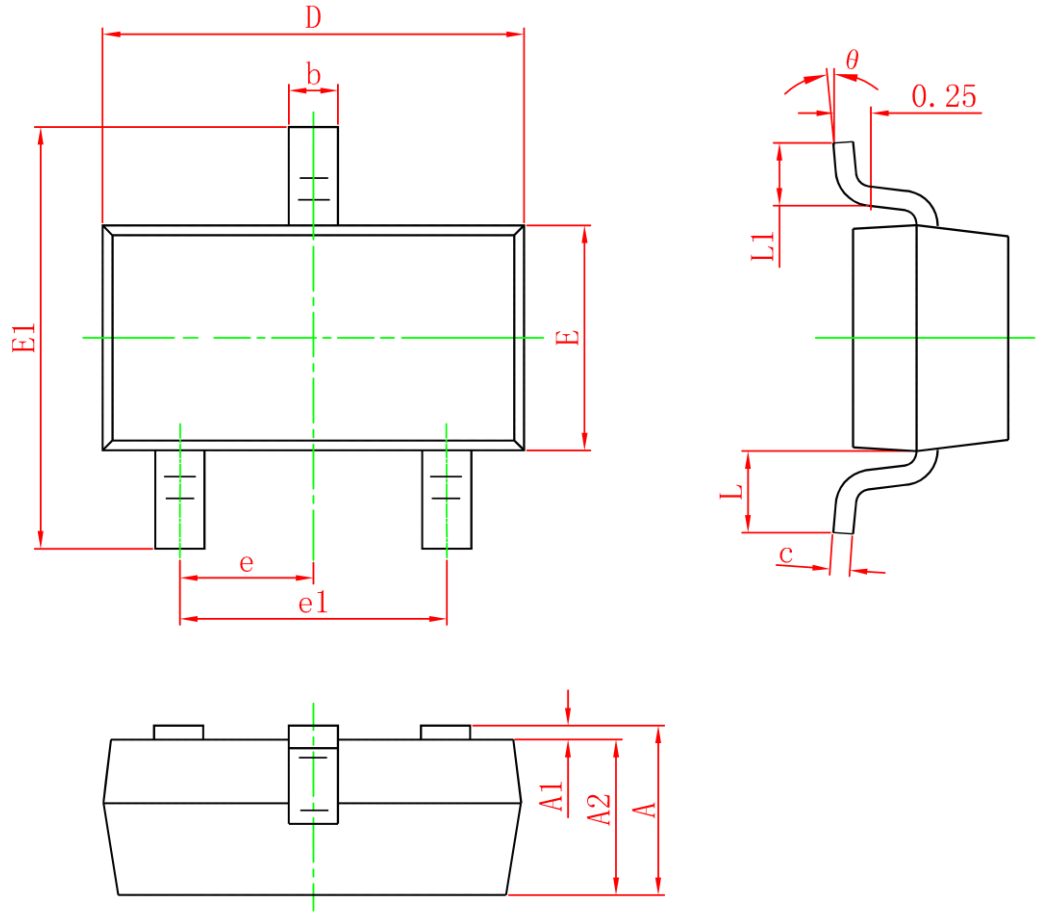
I_S - V_{SD}



Threshold Voltage



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°