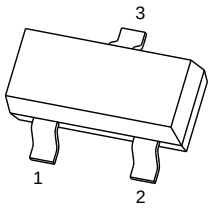
GP4459

30V P-Channel MOSFET

Product Summary

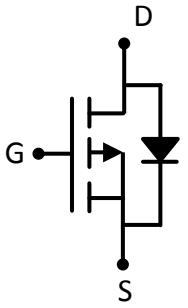
$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
-30V	35mΩ@-10V	-5A
	55mΩ@-4.5V	

SOT-23



1. GATE
2. SOURCE
3. DRAIN

Schematic diagram



Feature

- Trench Power MOSFET
- Excellent $R_{DS(ON}$

Application

- Load Switch
- Battery Protection Applications

MARKING:

4459 = Device Cpde
Solid Dot = Green Molding Compound Device,
Otherwise Normal Device

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}	±20	V
Continuous Drain Current	I_D	-5.0	A
Plused Drain Current	I_{DM}	-20	A
Maximum 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)

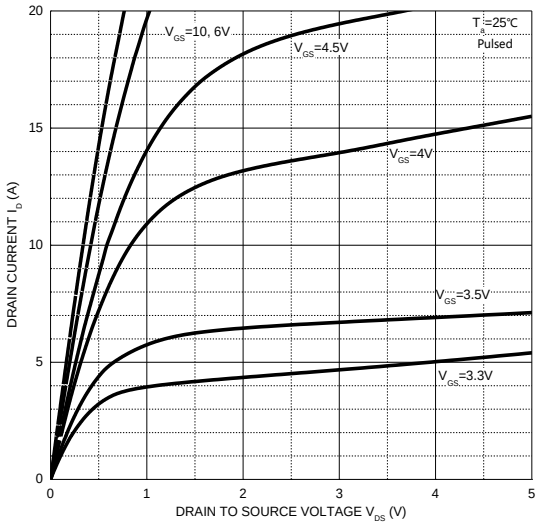
Parameter	Symbol	Test Condition	Min	Type	Max	Unit
Static Characteristics						
Drain-source breakdown voltage	$V_{(BR)DSS}$	V_{GS} = 0V, I_D =-250μA	-30			V
Zero gate voltage drain current	I_{DSS}	V_{DS} =-30V,V_{GS} = 0V			-1	μA
Gate-body leakage current	I_{GSS}	V_{GS} =±20V, V_{DS} = 0V			±100	nA
Gate threshold voltage[1]	$V_{GS(th)}$	V_{DS} =V_{GS}, I_D =-250μA	-1.0	-1.5	-2.5	V
Drain-source on-resistance[1]	$R_{DS(on)}$	V_{GS} =-10V, I_D =-5A		35	46	mΩ
		V_{GS} =-4.5V, I_D =-5A		55	72	
Forward tranconductance[1]	g_{FS}	V_{DS} =-5V, I_D =-5A	10			S
Dynamic characteristics						
Input Capacitance	C_{iss}	V_{DS} =-15V,V_{GS} =0V,f=1MHz		850		pF
Output Capacitance	C_{oss}			100		
Reverse Transfer Capacitance	C_{rss}			70		
Switching Characteristics						
Turn-on delay time	$t_{d(on)}$	V_{GS}=-10V,V_{DS}=-15V, R_L=2.5Ω,R_{GEN}=3Ω		9		ns
Turn-on rise time	t_r			7		
Turn-off delay time	$t_{d(off)}$			25		
Turn-off fall time	t_f			10		
Total gate charge	Q_g	V_{DS} =-15V,V_{GS} =-10V,I_D =-5A		12		nC
Gate-source charge	Q_{gs}			2.5		
Gate-drain charge	Q_{gd}			4		
Source-Drain Diode characteristics						
Diode Forward voltage[1]	V_{DS}	V_{GS} =0V, I_S=-1A			-1.2	V

Notes:

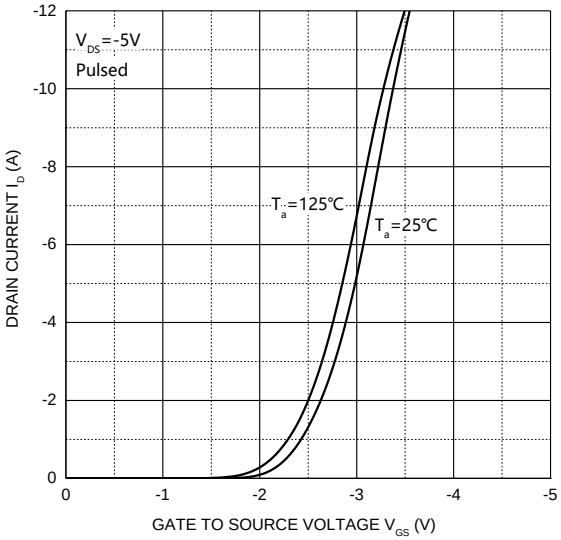
1 Pulse Test : Pulse width≤300μs, duty cycle≤2%.

Typical Electrical and Thermal Characteristics

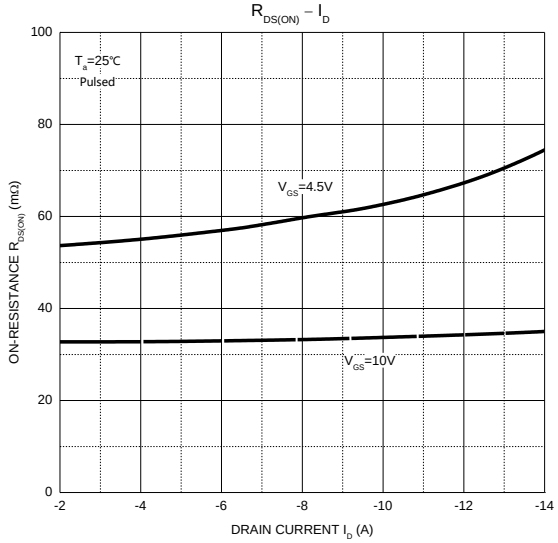
Output Characteristics



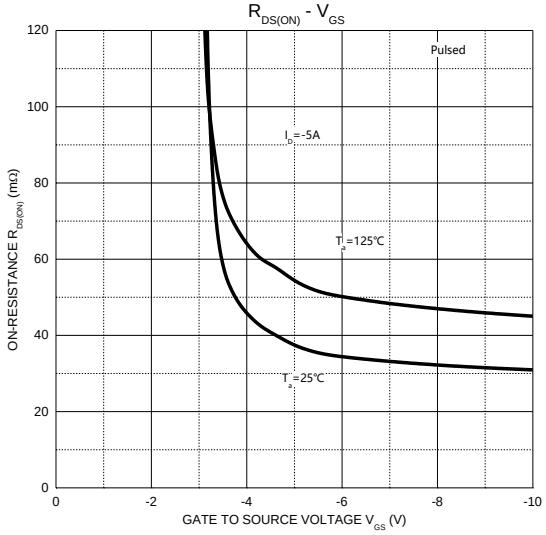
Transfer Characteristics



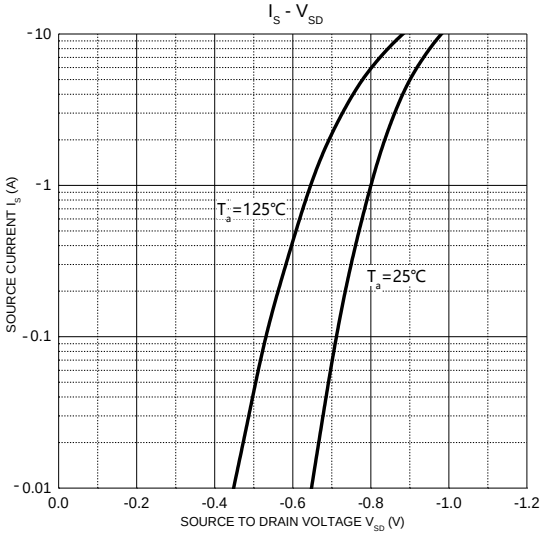
$R_{DS(ON)}$ – I_D



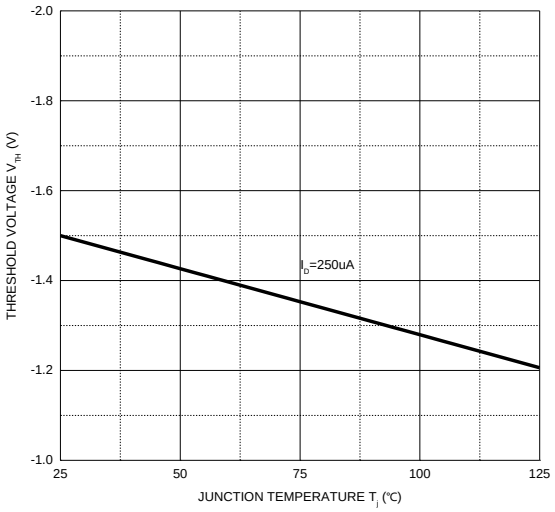
$R_{DS(ON)}$ - V_{GS}



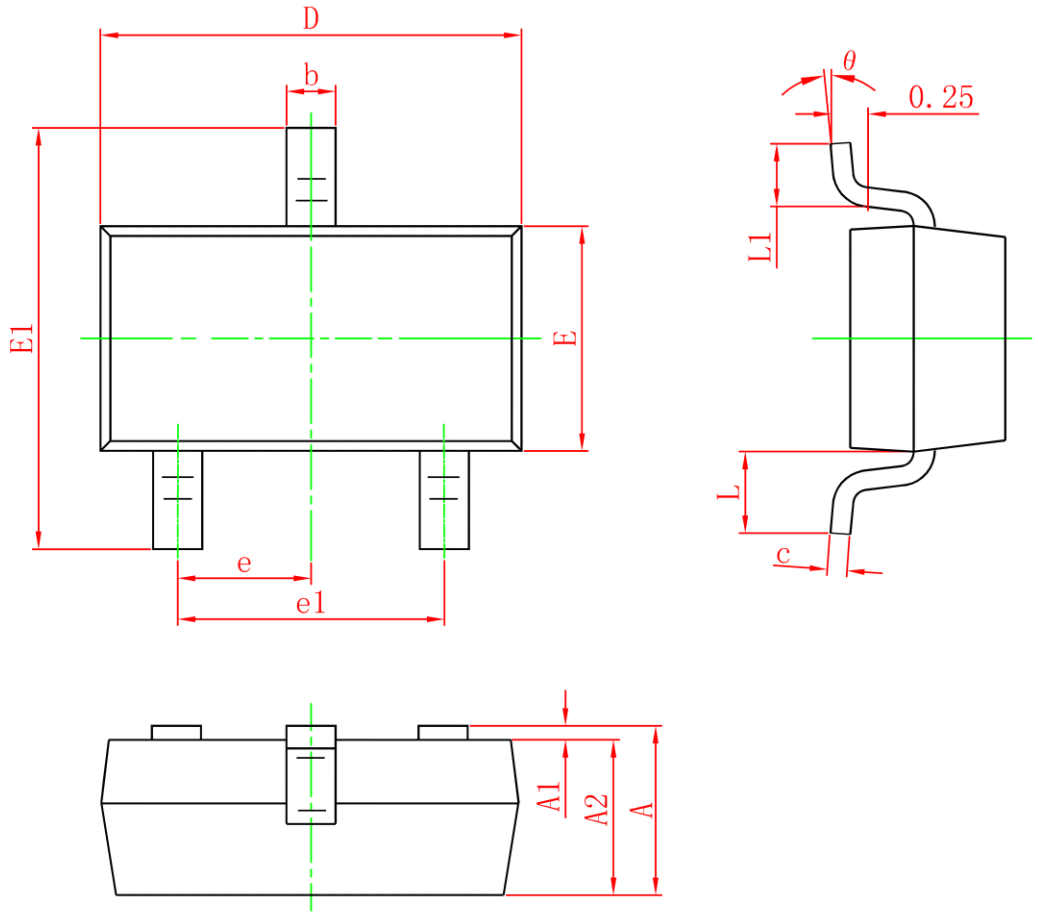
I_S - V_{SD}



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°