Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
30V	22mΩ@10V	6A
	25mΩ@4.5V	
	35mΩ@2.5V	

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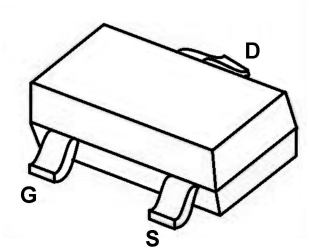
Feature

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

Application

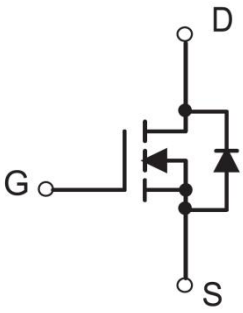
- DC/DC Converter
- Load Switch for Portable Devices
- Battery Switch

Package

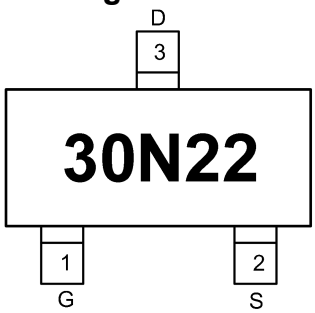


SOT-23-3L

Circuit diagram



Marking



30N22 =Device Code

Order Information

Device	Package	Unite/Tape
SP30N22T1	SOT-23-3L	3000

Absolute maximum ratings (Ta=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	6	A
Pulsed Drain Current[1)]	I_{DM}	24	A
Power Dissipation	P_D	1	W
Thermal Resistance from Junction to Ambient[2)]	$R_{\theta JA}$	125	℃/W
Junction Temperature	T_J	150	℃
Storage Temperature	T_{STG}	-55~ +150	℃

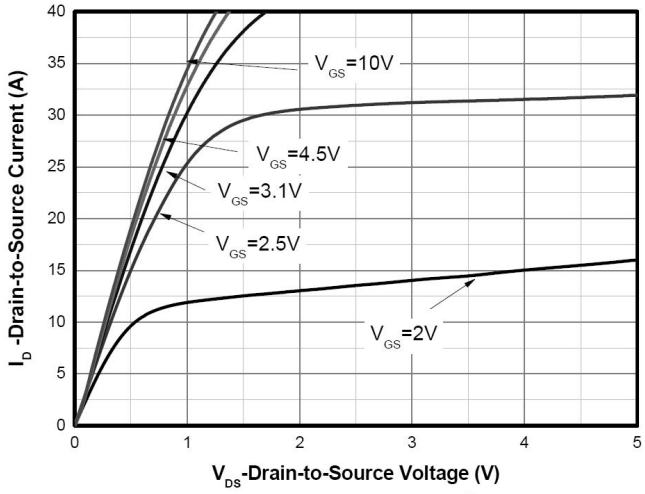
Electrical characteristics (T_A=25 ºC, unless otherwise noted)

Parameter	Symbol	Test Condition	Min.	Typ.	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			±0.1	μA
Gate threshold voltage	$V_{GS(th)}$	V_{DS} =V_{GS}, I_D =250μA	0.7	0.9	1.4	V
Drain-source on-resistance[3)]	$R_{DS(on)}$	V_{GS} =10V, I_D =6A		22	28	mΩ
		V_{GS} =4.5V, I_D =5A		25	35	
		V_{GS} =2.5V, I_D =4A		35	50	
Dynamic characteristics[4)]						
Input Capacitance	C_{iss}	V_{DS} =15V,V_{GS} =0V,f =1MHz		812		pF
Output Capacitance	C_{oss}			75		
Reverse Transfer Capacitance	C_{rss}			51		
Total Gate Charge	Qg	V_{GS} = 10V,V_{DS} = 15V, ID=6A	-	9.1		nC
Gate-Source Charge	Qgs		-	1.8	-	
Gate-Drain Charge	Qgd		-	2.1	-	
Switching Characteristics[4)]						
Turn-on delay time	$t_{d(on)}$	V_{GS}=10V,V_{DS}=15V, R_L=3Ω,I_D=5A		9.2		ns
Turn-on rise time	t_r			4.2		
Turn-off delay time	$t_{d(off)}$			48.1		
Turn-off fall time	t_f			6.3		
Source-Drain Diode characteristics						
Diode Forward voltage[3)]	V_{DS}	V_{GS} =0V, I_S=1A			1.2	V

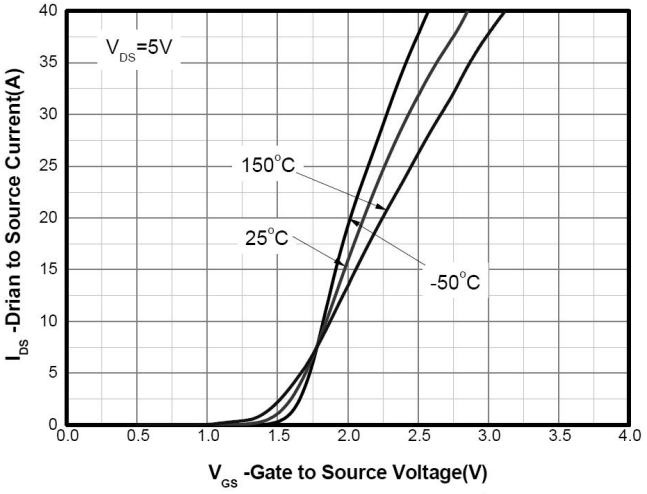
Note:

1) Repetitive Rating : Pulse width limited by maximum junction temperature.
2) Surface Mounted on FR4 Board, t < 5 sec.
3) Pulse Test : Pulse Width≤300μs, Duty Cycle ≤ 2%.
4) Guaranteed by design, not subject to production testing.

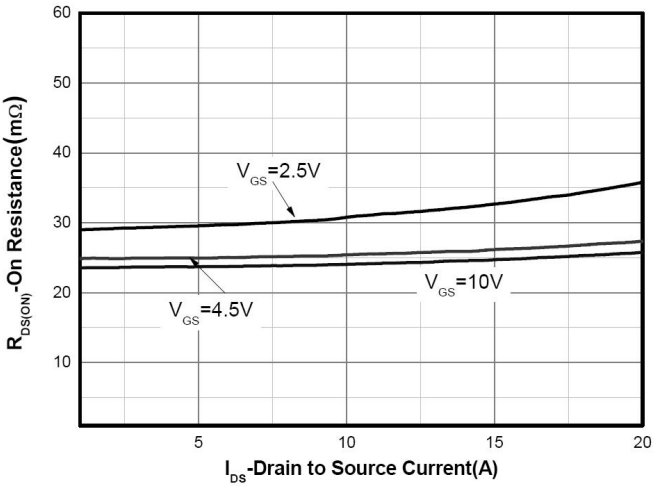
Typical Characteristics



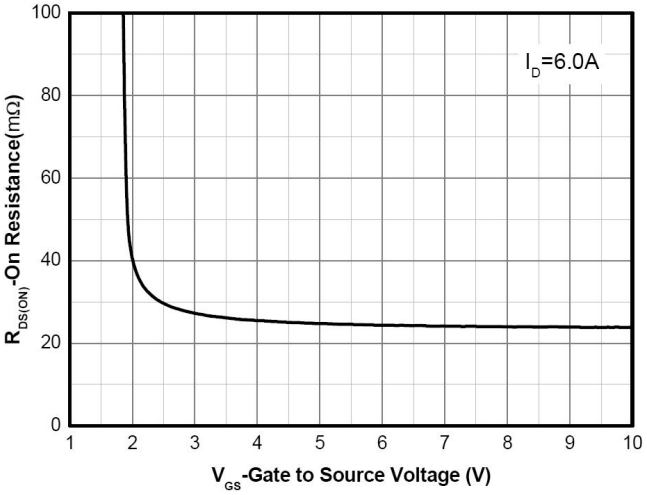
Output Characteristics [d]



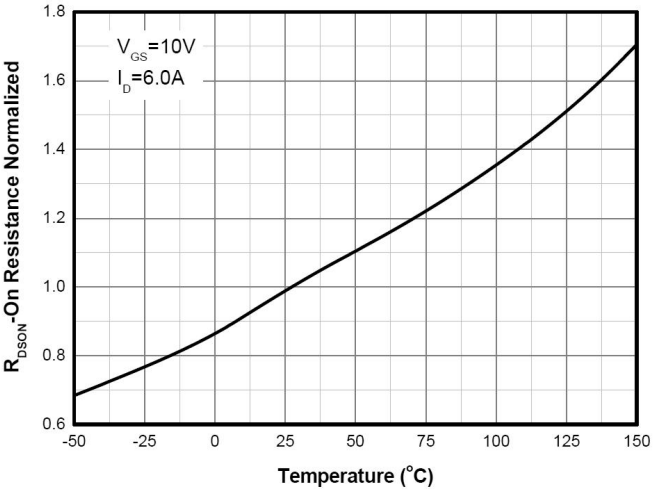
Transfer Characteristics [d]



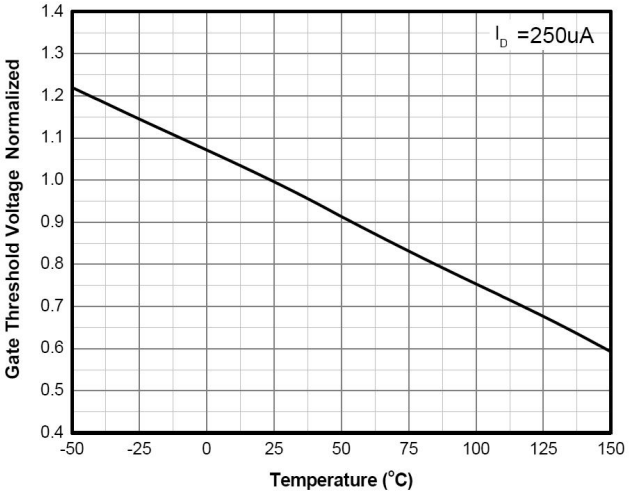
On-Resistance vs. Drain Current [d]



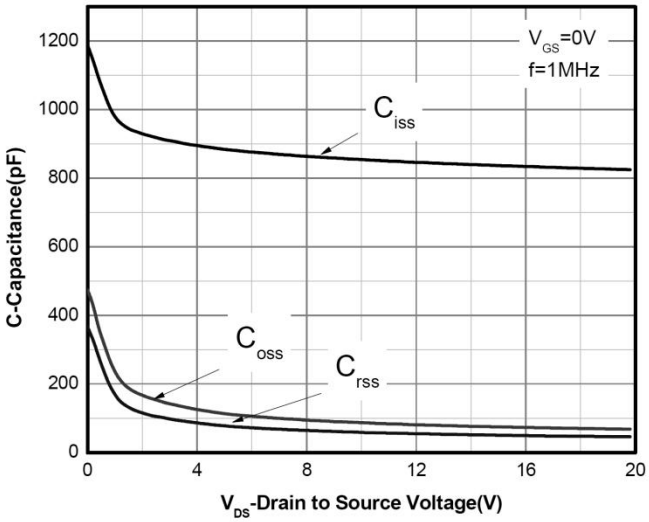
On-Resistance vs. Gate-to-Source Voltage [d]



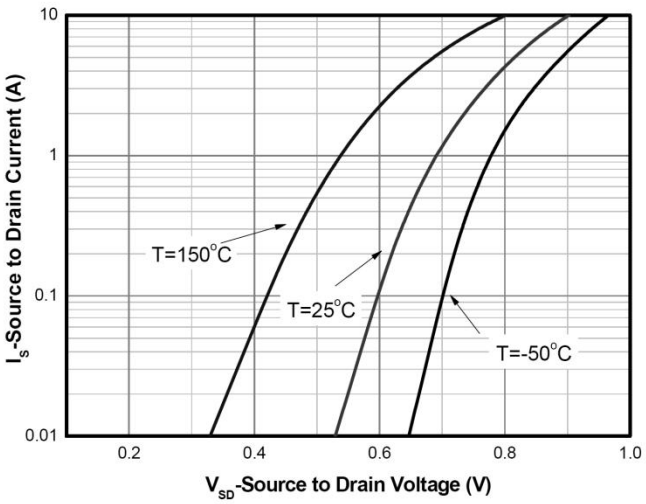
On-Resistance vs. Junction Temperature [d]



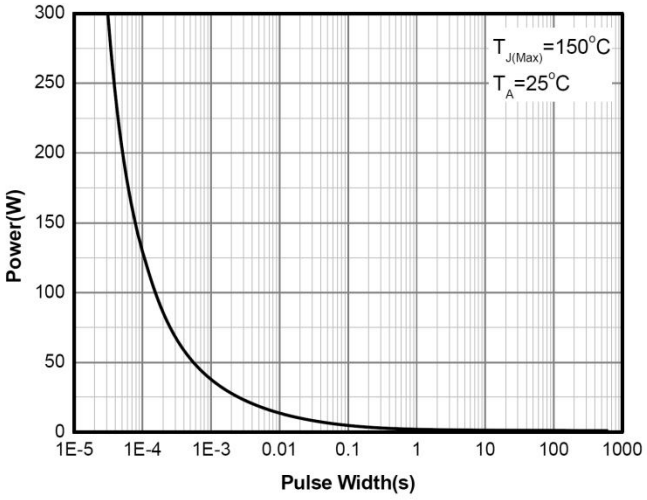
Threshold Voltage vs. Temperature



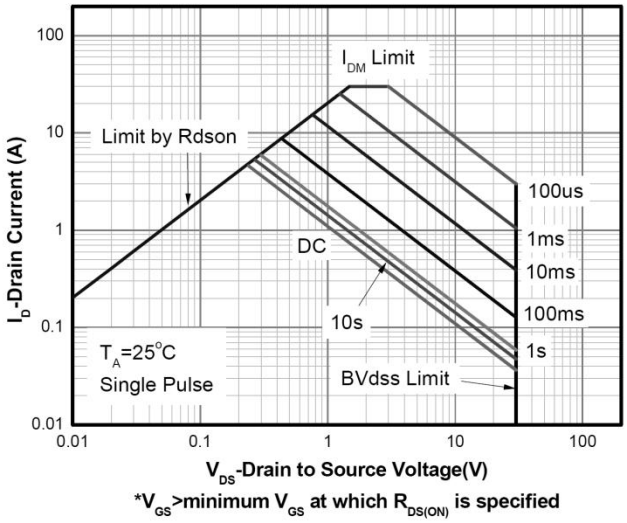
Capacitance



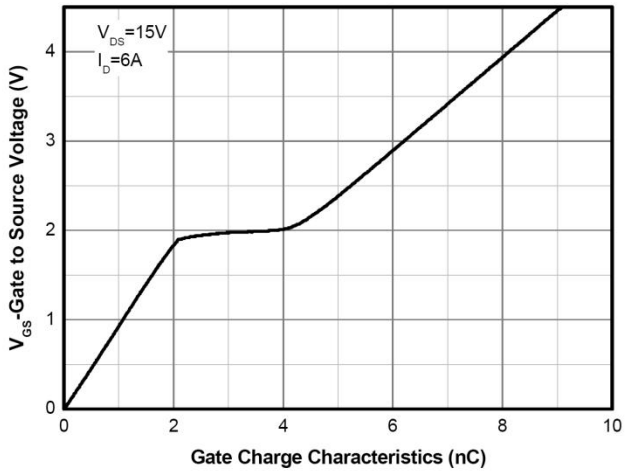
Body Diode Forward Voltage [d]



Single Pulse power

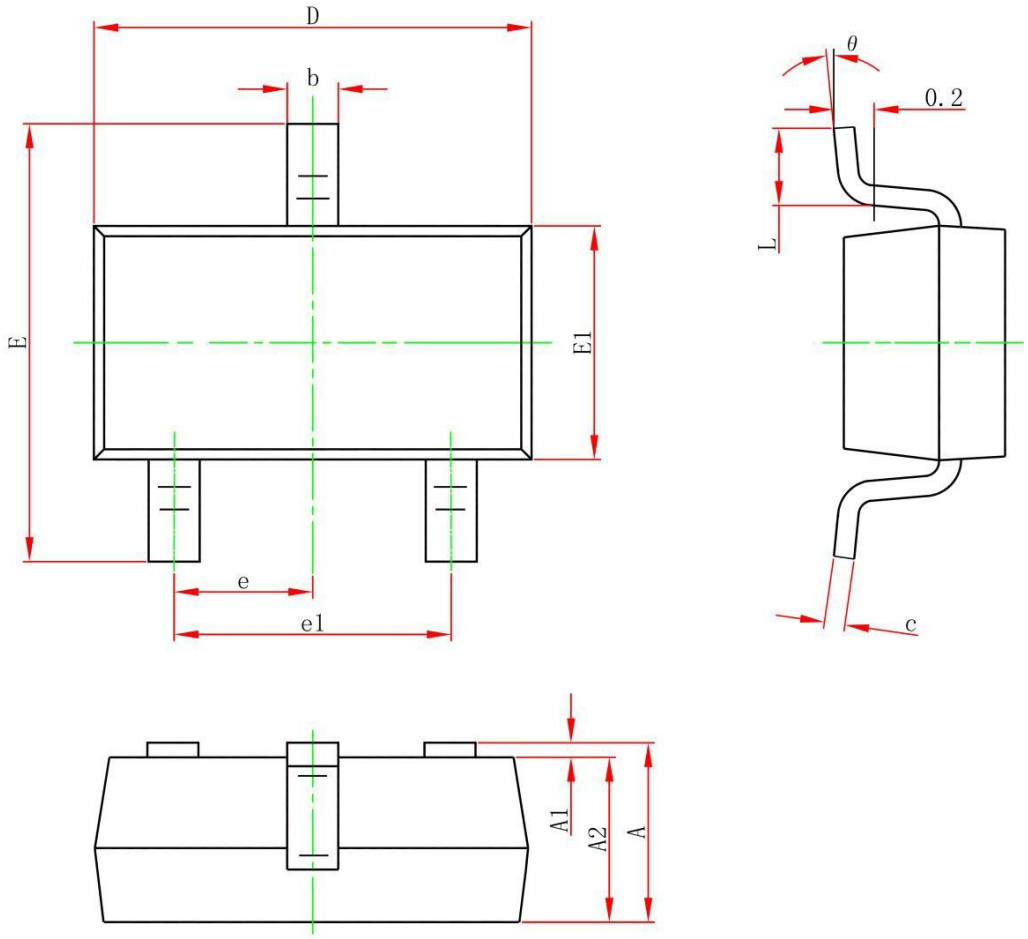


Safe Operating Power



Gate Charge Characteristics

SOT-23-3L Package Information



Symbol	Dimensions in millimeters	
	Min.	Max.
A	1.050	1.250
A1	0.000	0.100
A2	1.050	1.150
b	0.300	0.500
c	0.100	0.200
D	2.820	3.020
E1	1.500	1.700
E	2.650	2.950
e	0.950 Typ.	
e1	1.800	2.000
L	0.300	0.600
θ	0°	8°