

Product Summary

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

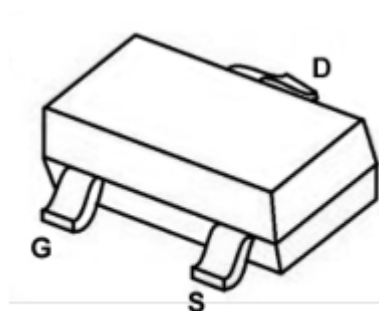
Feature

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

Application

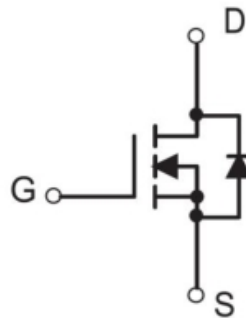
- DC/DC Converter
- Load Switch for Portable Devices
- Battery Switch

Package

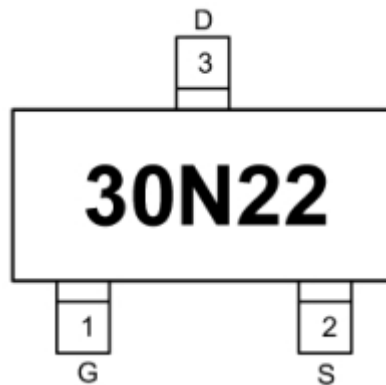


SOT-23

Circuit diagram



Marking



Absolute maximum ratings

($T_a=25^{\circ}\text{C}$ 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}	32	A
Power Dissipation	P_D	1	W
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	120	$^{\circ}\text{C/W}$
Junction Temperature	T_J	150	$^{\circ}\text{C}$
Storage Temperature	T_{STG}	-55~ +150	$^{\circ}\text{C}$

Electrical characteristics

($T_A=25^{\circ}\text{C}$, unless otherwise noted)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	BV (BR)DSS	V _{GS} = 0V, I _D =250μA	30			V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =24V, V _{GS} = 0V			1	uA
Gate-Source Leakage	I _{GSS}	V _{GS} =±12V, V _{DS} =0V			±0.1	uA
Gate-Source Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250μA	0.7	0.9	1.4	V
Drain-Source On-Resistance ²	R _{DS(on)}	V _{GS} =10V, I _D =5.8A		22	28	mΩ
		V _{GS} =4.5V, I _D =5A		25	35	
		V _{GS} =2.5V, I _D =4A		35	50	
Dynamic Characteristics						
Input Capacitance	C _{iss}	V _{DS} =15V, V _{GS} =0V, f=1MHz		862		pF
Output Capacitance	C _{oss}			84		
Reverse Transfer Capacitance	C _{rss}			70		
Switching Characteristics						
Turn-on Delay Time	T _{d(on)}	V _{GS} =10V, V _{DS} =15V, R _L =3Ω, I _D =5A		5		nS
Turn-on Rise Time	T _r			47		
Turn-off Delay Time	T _{d(off)}			26		
Turn-off Fall Time	T _f			8		
Source-Drain Diode Characteristics						
Diode Forward voltage ³	V _{SD}	I _S =1A, V _{GS} = 0V			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 $\leq 300\mu s$, Duty Cycle $\leq 2\%$.
4. Guaranteed by design, not subject to production testing.

Typical Characteristics

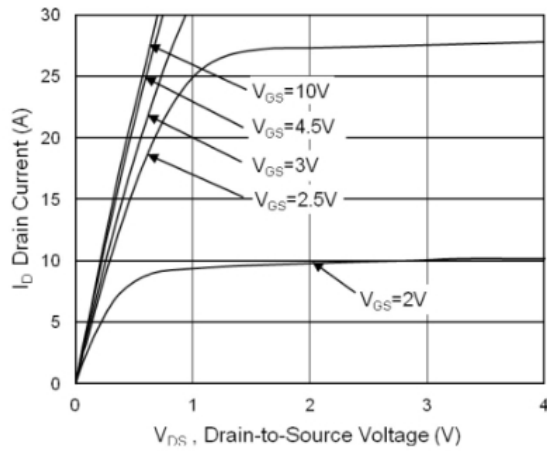


Fig.1 Typical Output Characteristics

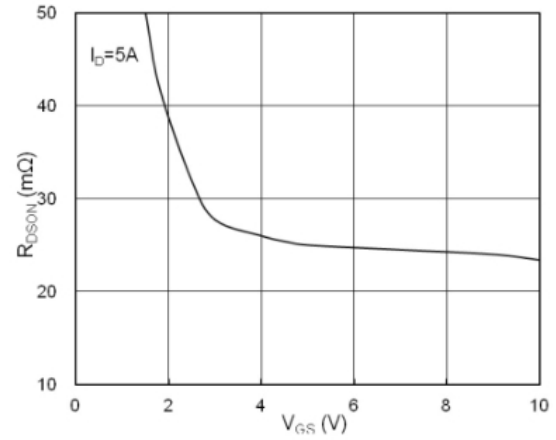


Fig.2 On-Resistance vs. Gate-Source

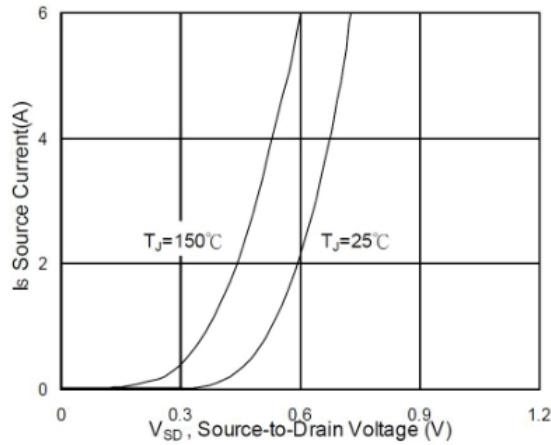


Fig.3 Forward Characteristics Of Reverse

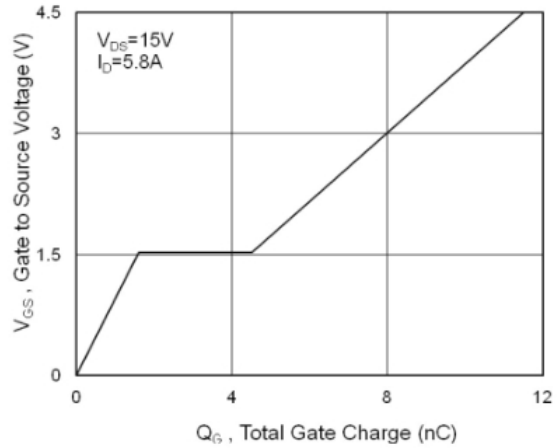
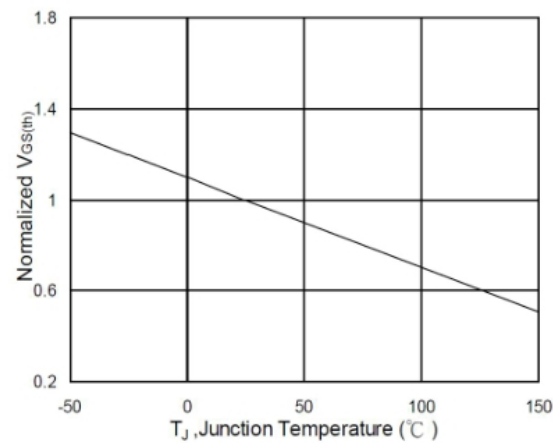
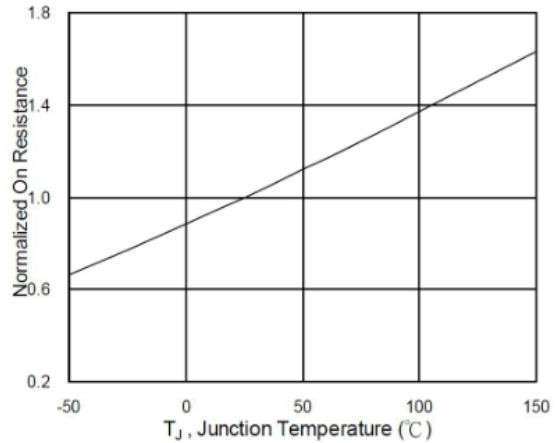


Fig.4 Gate-Charge Characteristics


Fig.5 Normalized $V_{GS(th)}$ vs. T_J

Fig.6 Normalized $R_{DS(on)}$ vs. T_J

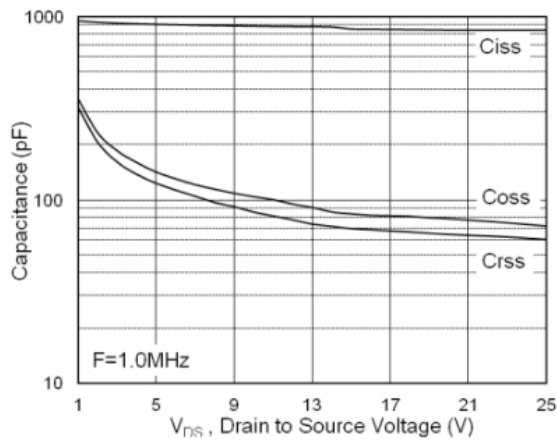


Fig.7 Capacitance

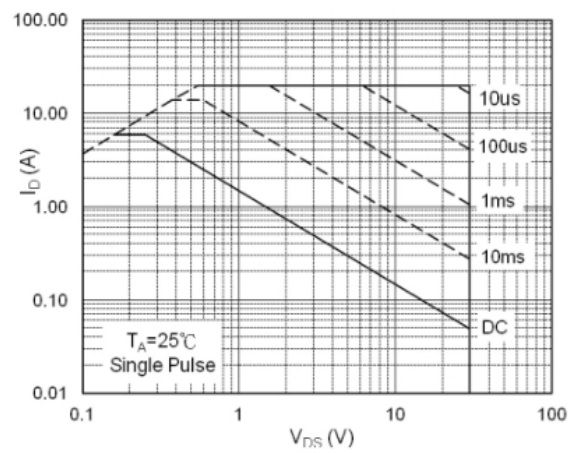


Fig.8 Safe Operating Area

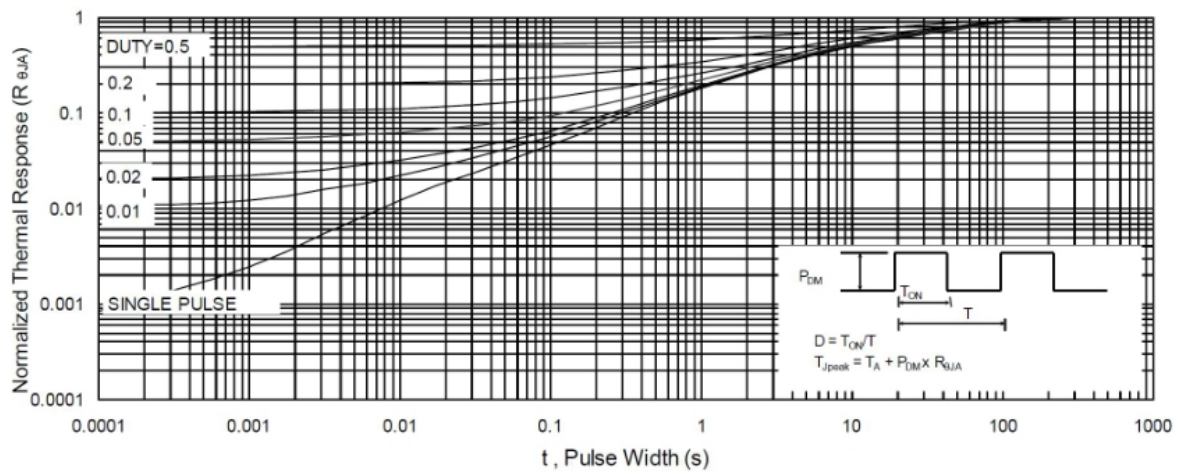


Fig.9 Normalized Maximum Transient Thermal Impedance

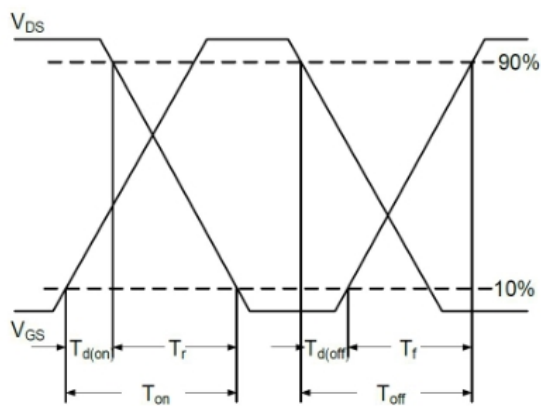


Fig.10 Switching Time Waveform

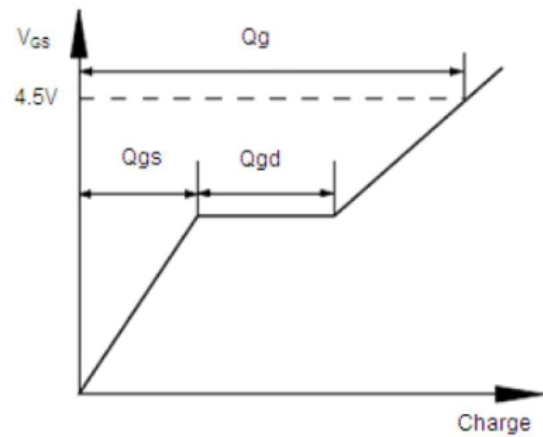
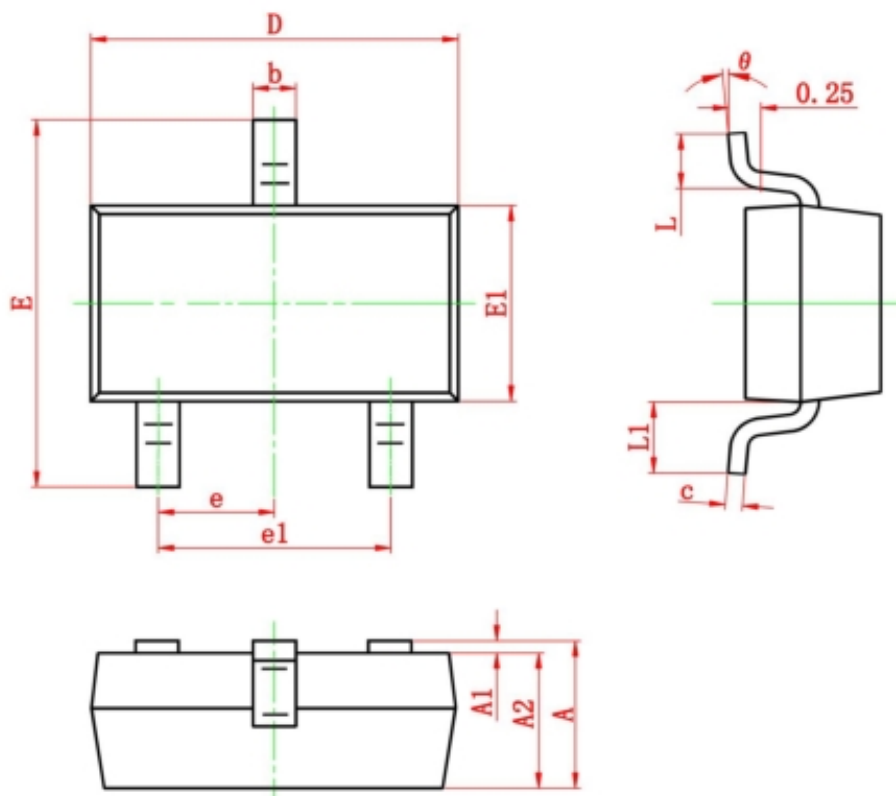


Fig.11 Gate Charge Waveform

SOT-23 Package Information



Symbol	Dimensions In Millimeters	
	Min.	Max.
A	0.90	1.15
A1	0.00	0.10
A2	0.90	1.05
b	0.30	0.50
c	0.08	0.15
D	2.80	3.00
E1	1.20	1.40
E	2.25	2.55
e	0.95 REF.	
e1	1.80	2.00
L	0.55 REF.	
L1	0.30	0.50
θ	0°	8°