AT5P6SN030MSG

N-Channel Enhancement Mode MOSFET

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)MAX}$	I_D
30V	28mΩ@10V	5.6A
	42mΩ@4.5V	

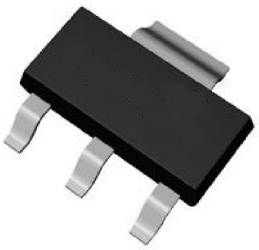
Feature

- High power and current handing capability
- Surface mount package

Application

- Battery Switch
- DC/DC Converter

Package



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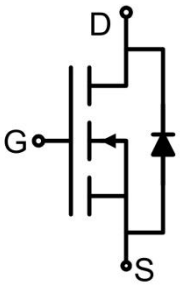
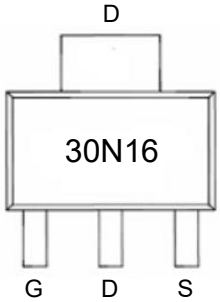
Circuit diagram



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}	±20	V
Continuous Drain Current	I_D	5.6	A
Pulsed Drain Current	I_{DM}	22.4	A
Power Dissipation	P_D	1.8	W
Thermal Resistance Junction to Ambient	$R_{\theta JA}$	69	℃/W
Operating Junction Temperature	T_J	-55 ~ +150	℃
Storage Temperature	T_{STG}	-55 ~ +150	℃

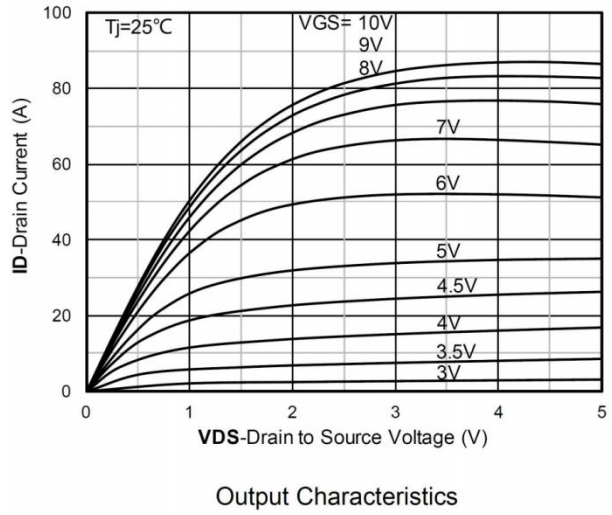
Electrical characteristics (T_A=25 °C, unless otherwise noted)

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_{DS} =0V, V_{GS} =±20V			±100	nA
Gate threshold voltage	$V_{GS(th)}$	V_{DS} =V_{GS}, I_D =250μA	1	1.5	2.2	V
Drain-source on-resistance	$R_{DS(on)}$	V_{GS} =10V, I_D =3.2A		16	28	mΩ
		V_{GS} =4.5V, I_D =2.8A		24	42	
Dynamic characteristics[1)]						
Input Capacitance	C_{iss}	V_{DS} =15V, V_{GS} =0V, f =1MHz		420		pF
Output Capacitance	C_{oss}			60		
Reverse Transfer Capacitance	C_{rss}			53		
Total Gate Charge	Q_g	V_{DS} =15V, V_{GS} =4.5V, I_D =3A		9		nC
Gate-Source Charge	Q_{gs}			1.9		
Gate-Drain Charge	Q_{gd}			2.1		
Turn-on delay time	$t_{d(on)}$	V_{DS}=15V, V_{GS} =10V, I_D =4A R_G =3.3Ω		5		nS
Turn-on rise time	t_r			11		
Turn-off delay time	$t_{d(off)}$			14		
Turn-off fall time	t_f			2.1		
Source-Drain Diode characteristics						
Diode Forward Current	I_S				5.6	A
Diode Forward voltage	V_{SD}	V_{GS} =0V, I_S=1A, T_J =25℃			1.2	V

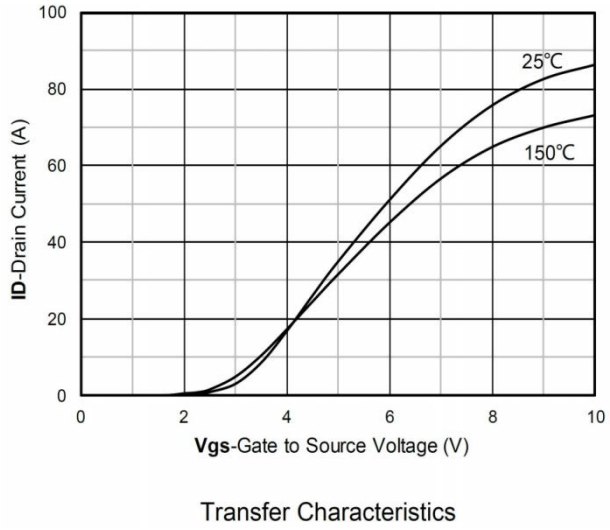
Notes:

1) Guaranteed by design, not subject to production

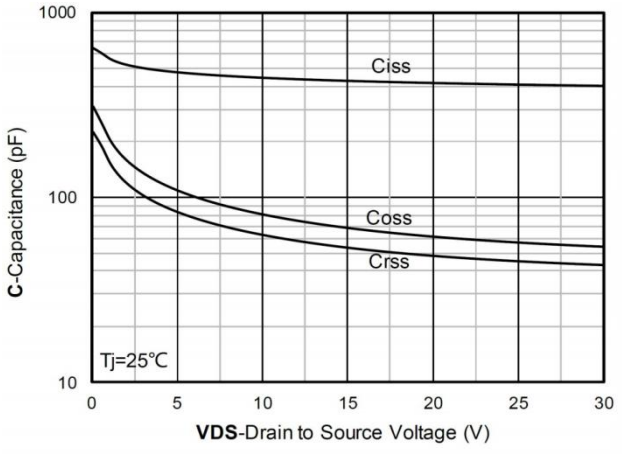
Typical Characteristics



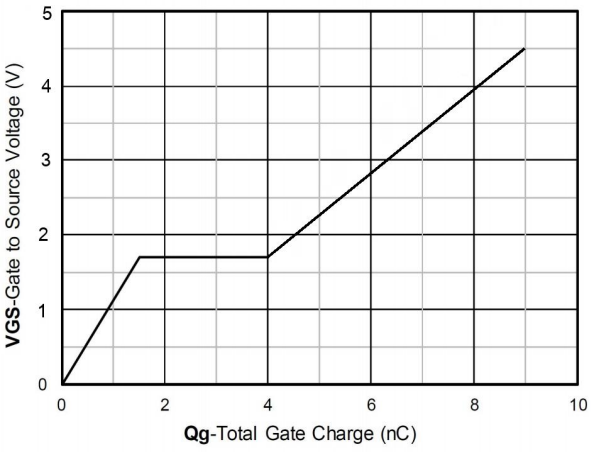
Output Characteristics



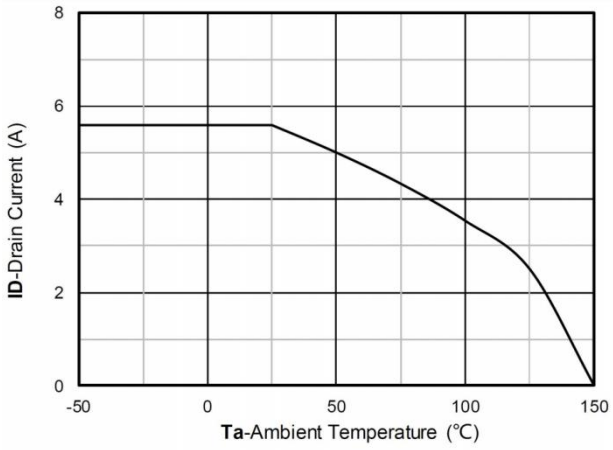
Transfer Characteristics



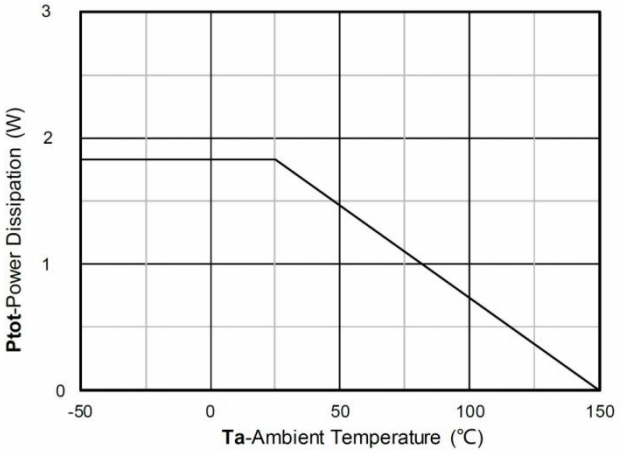
Capacitance Characteristics



Gate Charge

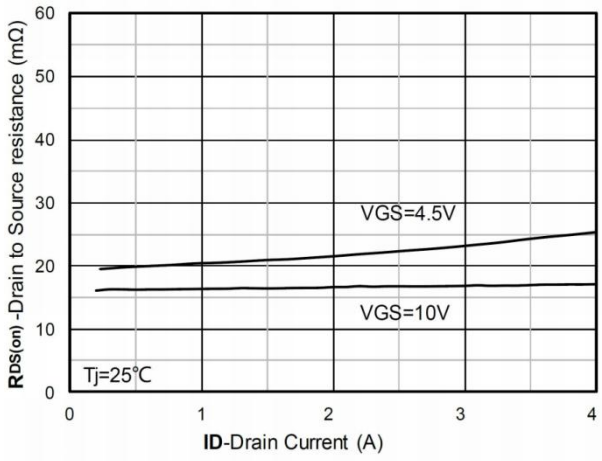


Current dissipation

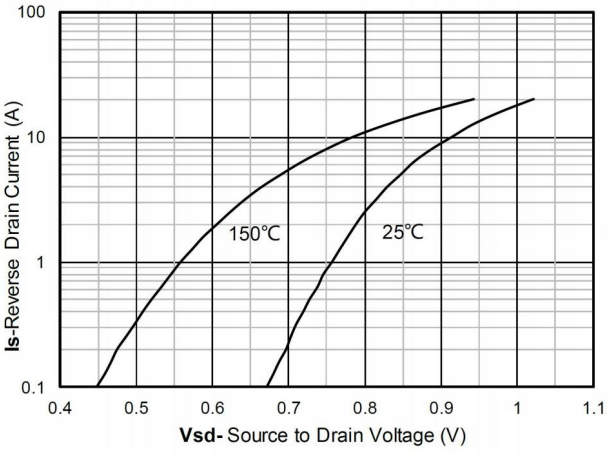


Power dissipation

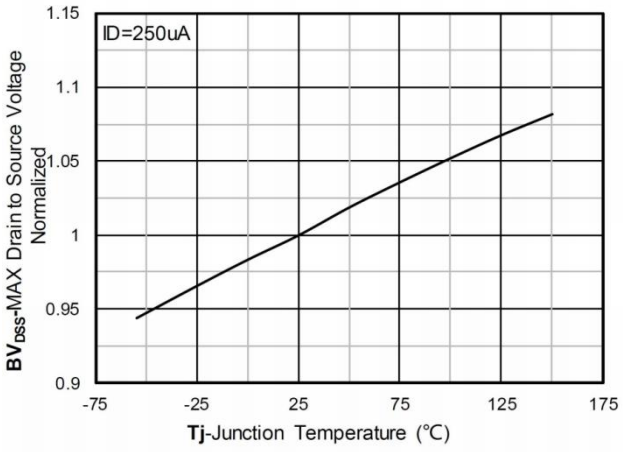
Typical Characteristics



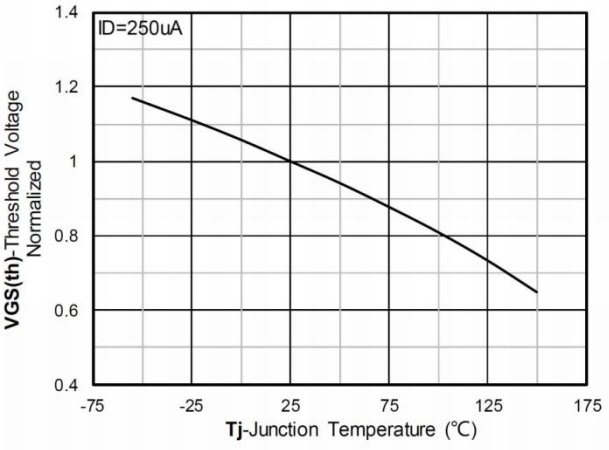
RDS(on) VS Drain Current



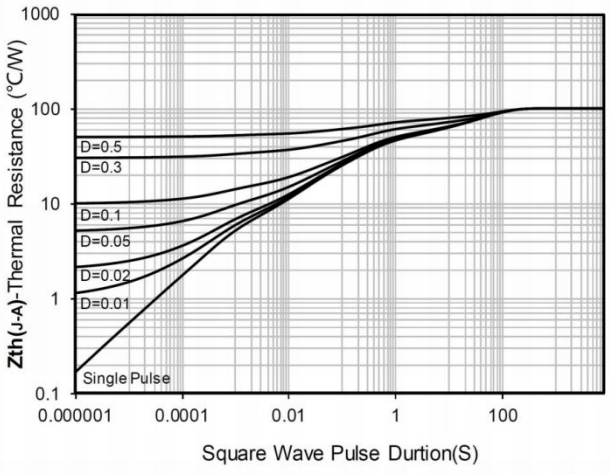
Forward characteristics of reverse diode



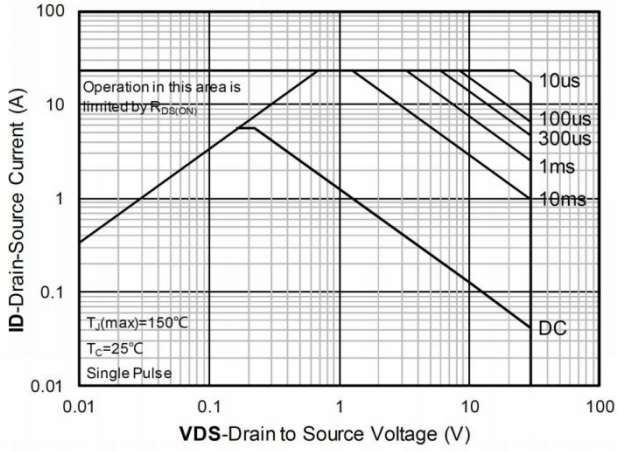
Normalized breakdown voltage



Normalized Threshold voltage

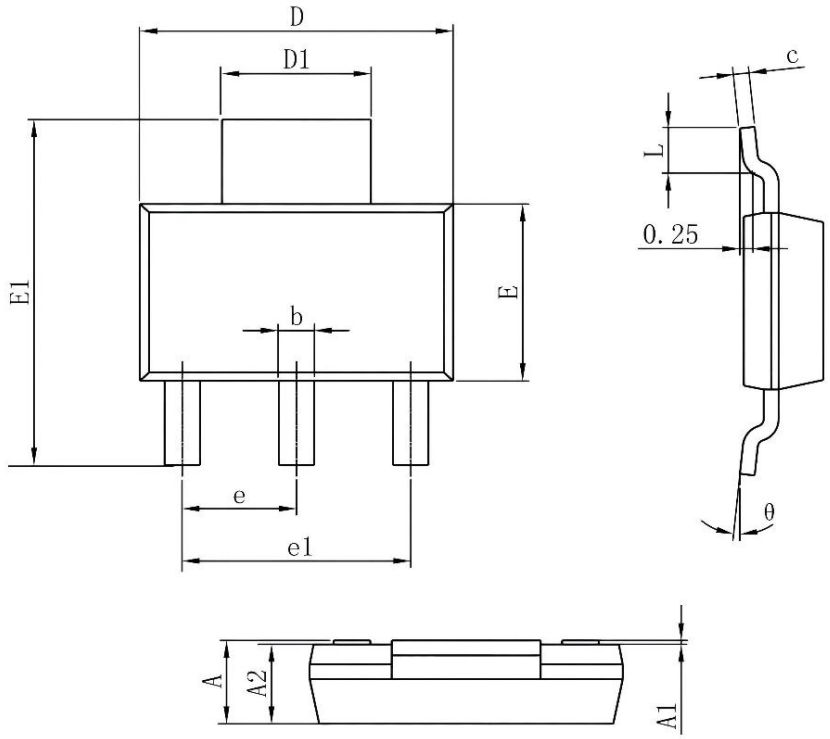


Maximum Transient Thermal Impedance



Safe Operation Area

SOT-223 Package Information



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	1.520	1.800	0.060	0.071
A1	0.000	0.100	0.000	0.004
A2	1.500	1.700	0.059	0.067
b	0.660	0.820	0.026	0.032
c	0.250	0.350	0.010	0.014
D	6.200	6.400	0.244	0.252
D1	2.900	3.100	0.114	0.122
E	3.300	3.700	0.130	0.146
E1	6.830	7.070	0.269	0.278
e	2.300 BSC.		0.091 BSC.	
e1	4.500	4.700	0.177	0.185
L	0.900	1.150	0.035	0.045
θ	0°	10°	0°	10°