AT3400MSA

N-Channel Enhancement Mode MOSFET

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)MAX}$	I_D
30V	35mΩ@10V	5.8A
	40mΩ@4.5V	
	50mΩ@2.5V	

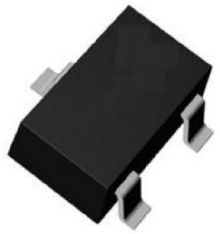
Feature

- High power and current handing capability
- Surface mount package

Application

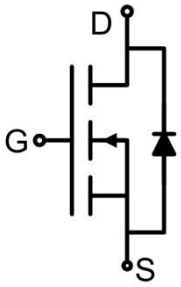
- Battery switch
- DC/DC converter

Package

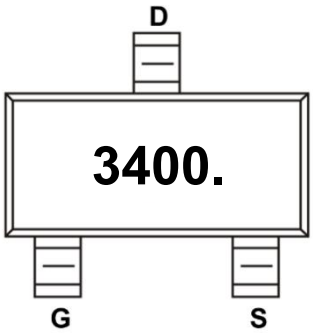


SOT-23

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}	±12	V
Continuous Drain Current	I_D	5.8	A
Pulsed Drain Current	I_{DM}	23.2	A
Power Dissipation	P_D	1.3	W
Thermal Resistance Junction to Ambient	$R_{\theta JA}$	96	℃/W
Operating Junction Temperature	T_J	-55 ~ +150	℃
Storage Temperature	T_{STG}	-55 ~ +150	℃

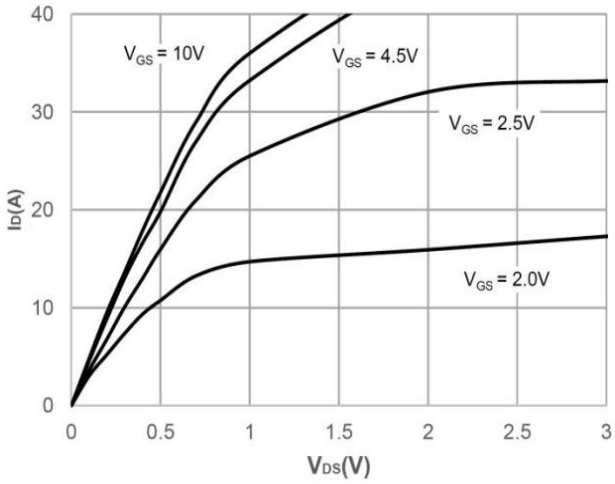
Electrical characteristics (T_A=25 ºC, unless otherwise noted)

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_{DS} =0V, V_{GS} =±12V			±100	nA
Gate threshold voltage	$V_{GS(th)}$	V_{DS} =V_{GS}, I_D =250μA	0.6	0.95	1.3	V
Drain-source on-resistance	$R_{DS(on)}$	V_{GS} =10V, I_D =5.8A		25	35	mΩ
		V_{GS} =4.5V, I_D =5A		30	40	
		V_{GS} =2.5V, I_D =4A		40	50	
Dynamic characteristics[1)]						
Input Capacitance	C_{iss}	V_{DS} =15V, V_{GS} =0V, f =1MHz		765		pF
Output Capacitance	C_{oss}			68		
Reverse Transfer Capacitance	C_{rss}			53		
Total Gate Charge	Q_g	V_{DS} =15V, V_{GS} =10V, I_D =3A		19		nC
Gate-Source Charge	Q_{gs}			2		
Gate-Drain Charge	Q_{gd}			2.2		
Turn-on delay time	$t_{d(on)}$	V_{DS} =15V, V_{GS} =10V, I_D =3A R_G =3Ω		5		nS
Turn-on rise time	t_r			11		
Turn-off delay time	$t_{d(off)}$			25		
Turn-off fall time	t_f			3		
Source-Drain Diode characteristics						
Diode Continuous Current	I_S				5.8	A
Diode Forward voltage	V_{SD}	V_{GS} =0V, I_S =1A, T_J =25℃			1.2	V

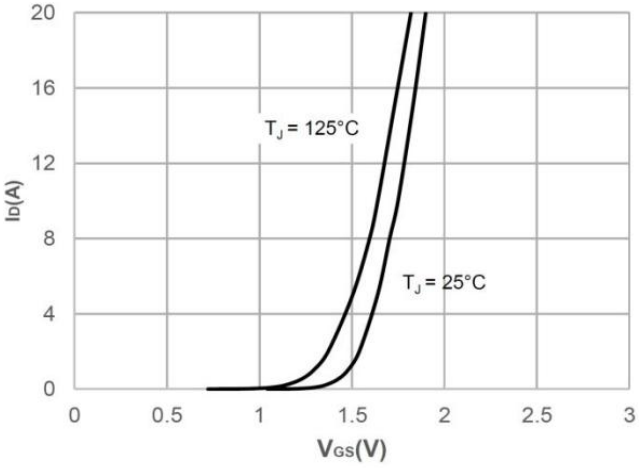
Notes:

1) Guaranteed by design, not subject to production testing.

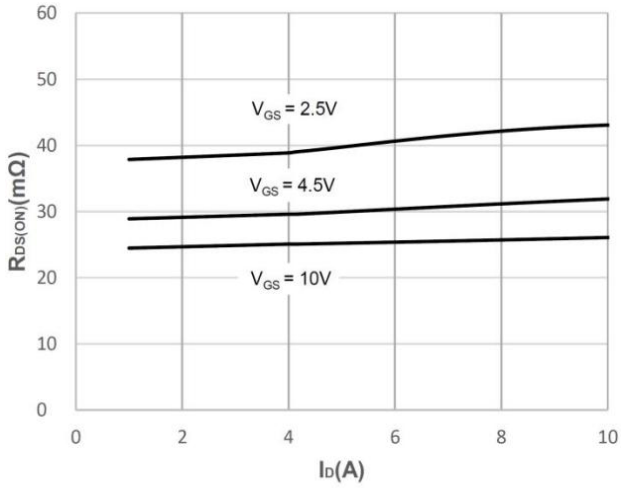
Typical Characteristics



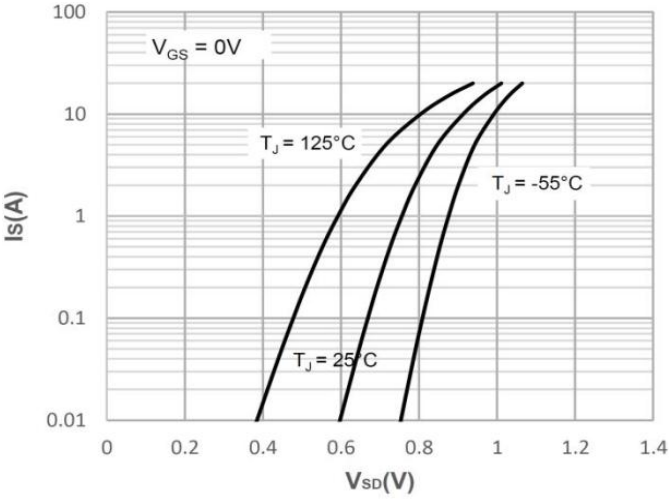
Output Characteristics



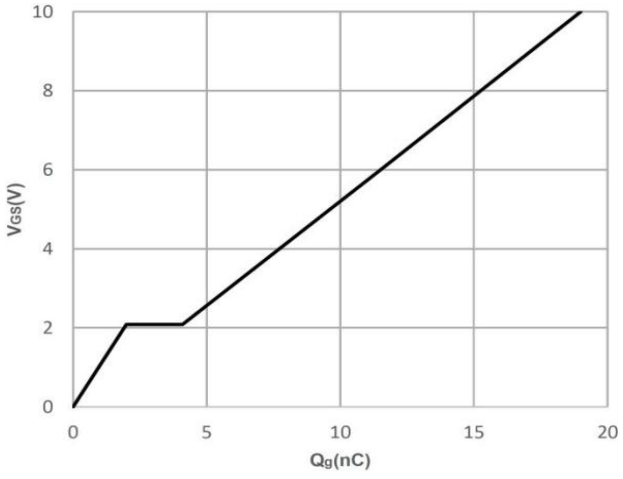
Typical Transfer Characteristics



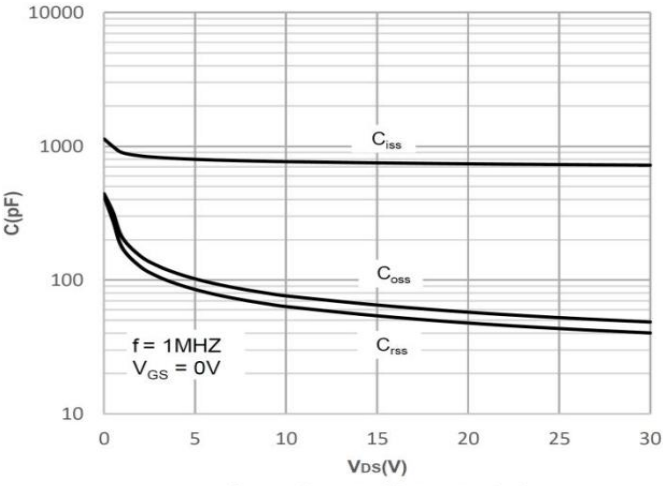
On-resistance vs. Drain Current



Body Diode Characteristics

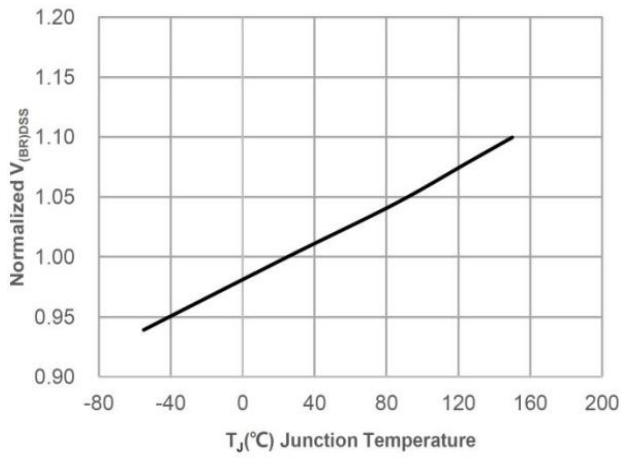


Gate Charge Characteristics

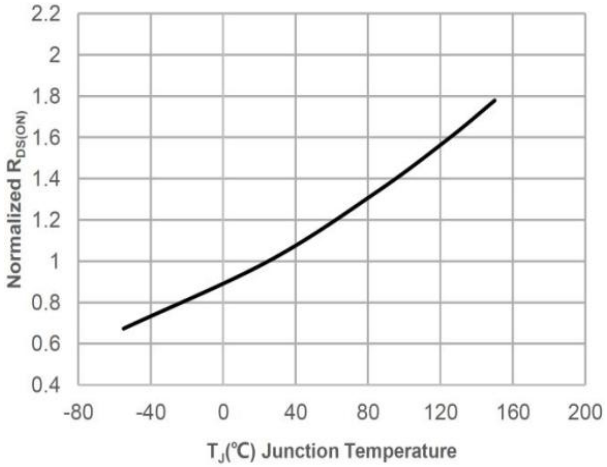


Capacitance Characteristics

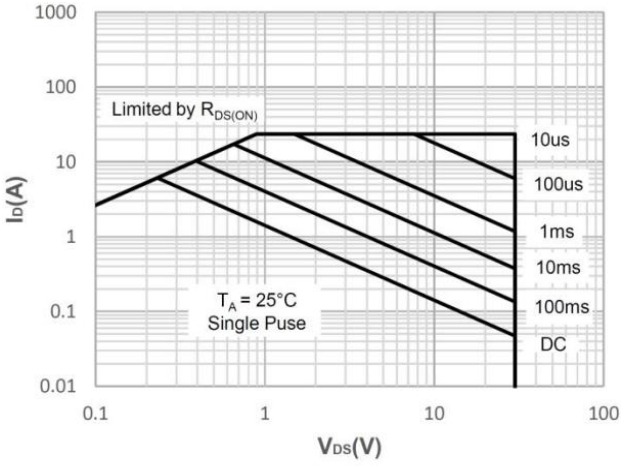
Typical Characteristics



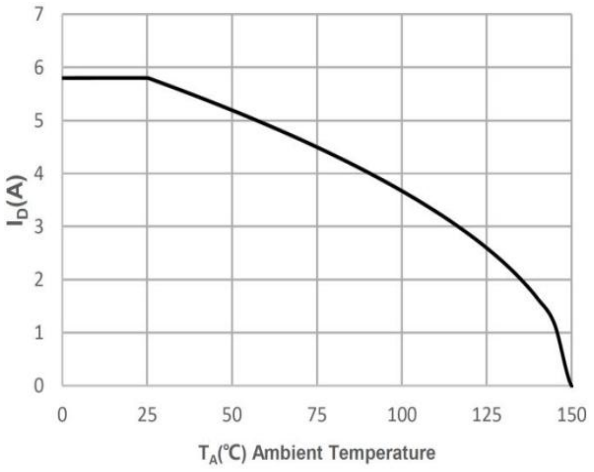
Normalized Breakdown voltage vs. Junction Temperature



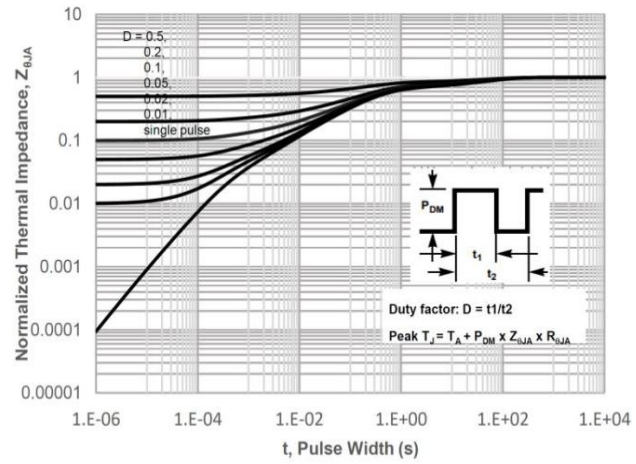
Normalized on Resistance vs. Junction Temperature



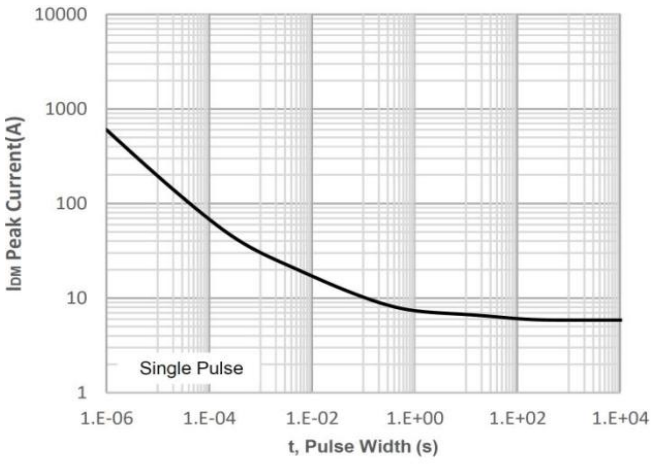
Maximum Safe Operating Area



Maximum Continuous Drian Current vs. Ambient Temperature

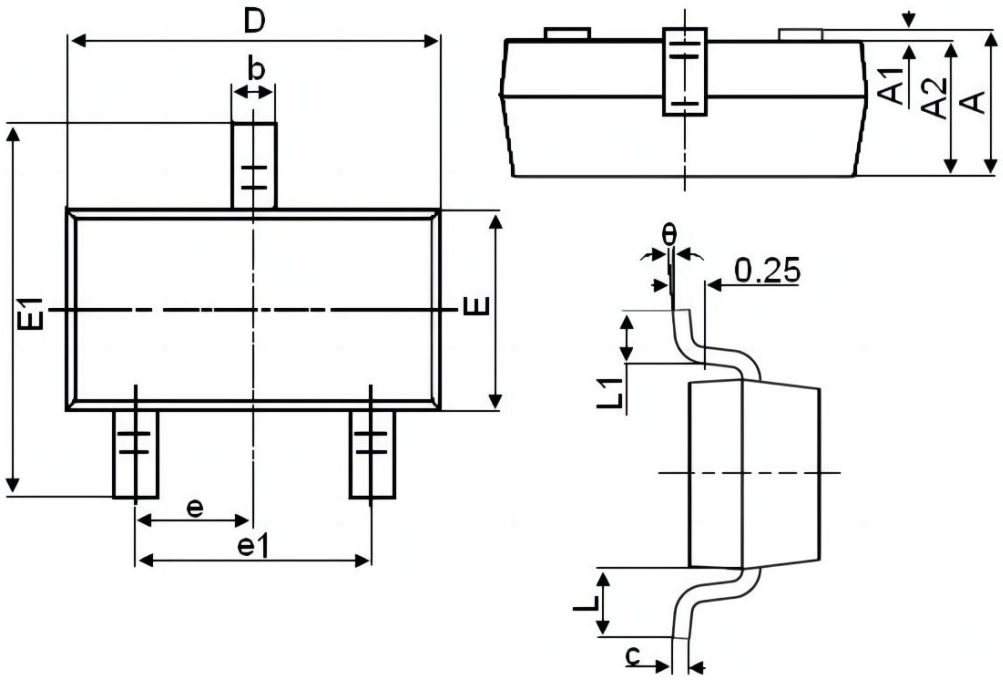


Normalized Maximum Transient Thermal Impedance



Peak Current Capacity

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	0.000	0.100	0.000	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	1.200	1.400	0.047	0.055
E1	2.250	2.550	0.089	0.100
e	0.950 REF.		0.037 REF.	
e1	1.800	2.000	0.071	0.079
L	0.550 REF.		0.022 REF.	
L1	0.300	0.500	0.012	0.020
θ	0°	8°	0°	8°