

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
30V	20mΩ@10V	6.5A
	25mΩ@4.5V	
	30mΩ@2.5V	



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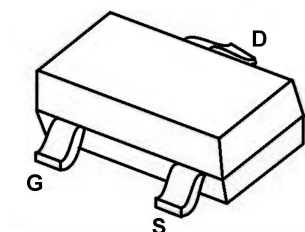
Feature

- High power and current handing capability
- Surface mount package

Application

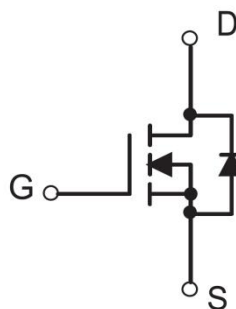
- Battery Switch
- DC/DC Converter

Package

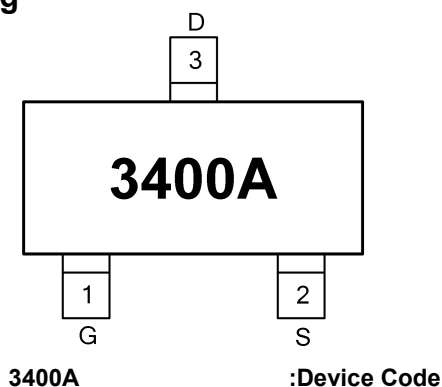


SOT-23-3L

Circuit diagram



Marking



Order Information

Device	Package	Unit/Tape
SP3400AT1	SOT-23-3L	3000

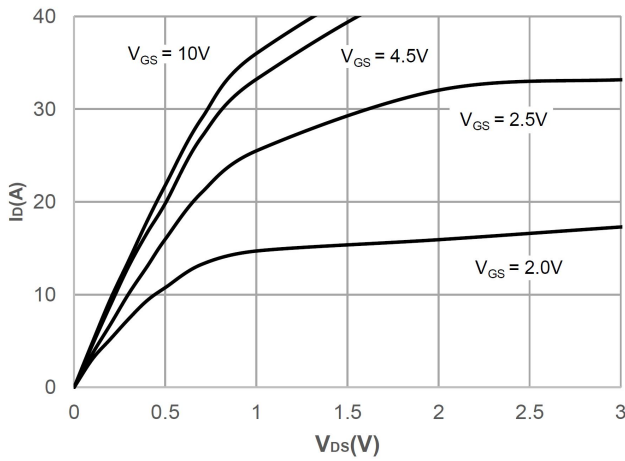
Absolute maximum ratings (Ta=25°C, unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	30	V
Gate-Source Voltage	V_{GS}	± 12	V
Continuous Drain Current	I_D	6.5	A
Pulse Drain Current Tested	I_{DM}	26	A
Power Dissipation	P_D	1.4	W
Thermal Resistance Junction-to-Ambient	$R_{\theta JA}$	89.3	°C/W
Storage Temperature Range	T_{STG}	-55 to 150	°C
Operating Junction Temperature Range	T_J	-55 to 150	°C

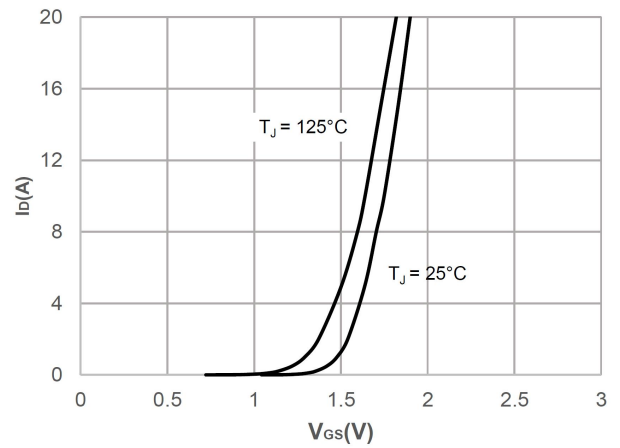
Electrical characteristics (Ta=25°C, unless otherwise noted)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	BV _{DSS}	VGS=0V , ID=250μA	30	-	-	V
Drain-Source Leakage Current	IDSS	VDS=24V , VGS=0V	-	-	1	uA
Gate-Source Leakage Current	IGSS	VGS=±12V , VDS=0V	-	-	±100	nA
Gate Threshold Voltage	VGS(th)	VDS=VGS , ID=250μA	0.6	0.95	1.3	V
Static Drain-Source On-Resistance	RDS(ON)	VGS=10V , ID =5.8A	-	20	27	mΩ
		VGS=4.5V , ID =5A	-	25	32	
		VGS=2.5V , ID =4A	-	30	48	
Dynamic characteristics						
Input Capacitance	Ciss	VDS=15V , VGS=0V , f=1MHz	-	765	-	pF
Output Capacitance	Coss		-	68	-	
Reverse Transfer Capacitance	Crss		-	53	-	
Total Gate Charge	Qg	VDS=15V , VGS=10V , ID=3A	-	18	-	nC
Gate-Source Charge	Qgs		-	3	-	
Gate-Drain Charge	Qgd		-	2.2	-	
Switching Characteristics						
Turn-On Delay Time	td(on)	VDD=15V VGS=10V , RG=3Ω , ID=3A	-	5	-	nS
Turn-On Rise Time	tr		-	11	-	
Turn-Off Delay Time	td(off)		-	25	-	
Turn-Off Fall Time	tf		-	3	-	
Source-Drain Diode characteristics						
Diode Forward Voltage	VSD	VGS=0V , IS=1A , TJ=25℃	-	-	1.2	V

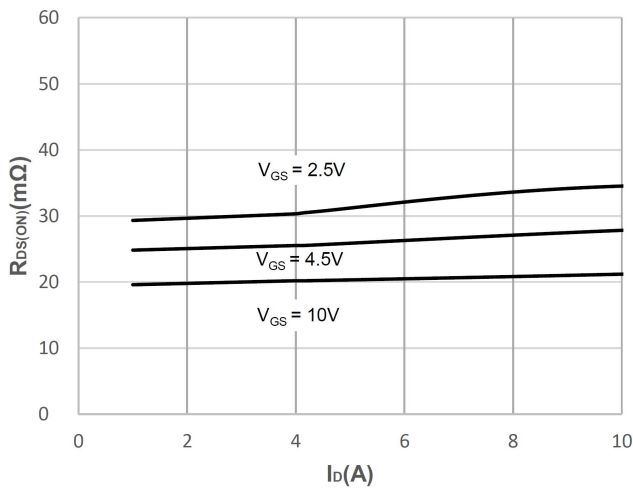
Typical Characteristics



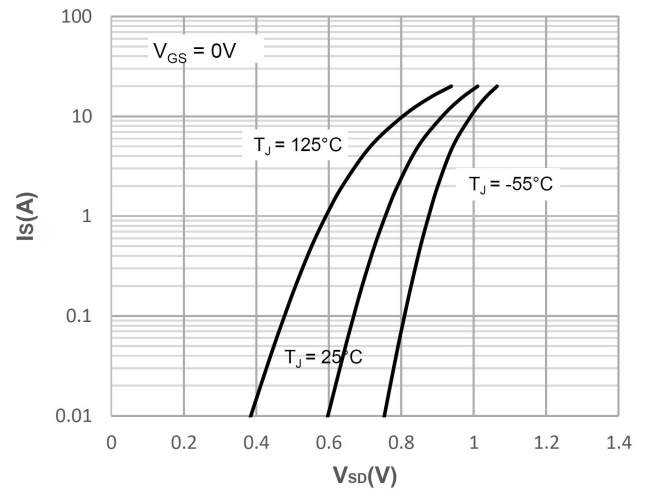
Output Characteristics



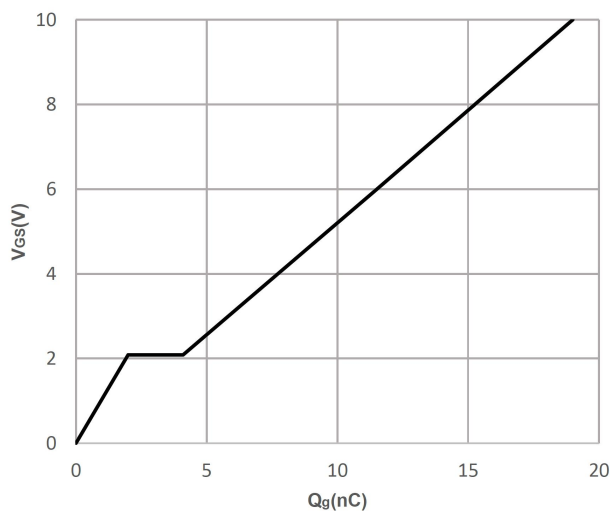
Typical Transfer Characteristics



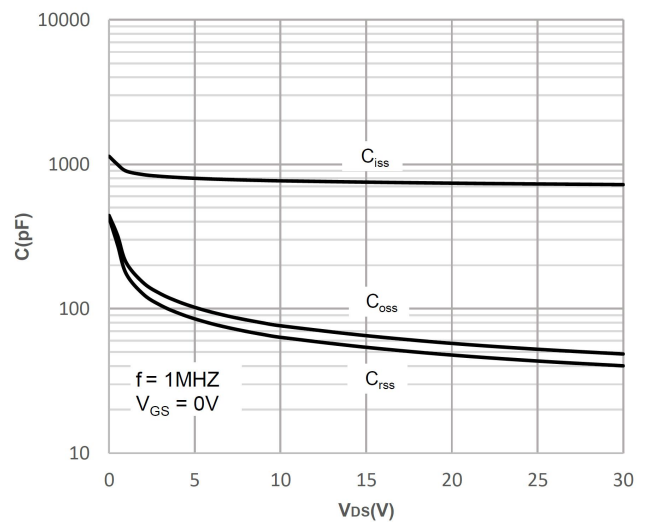
On-resistance vs. Drain Current



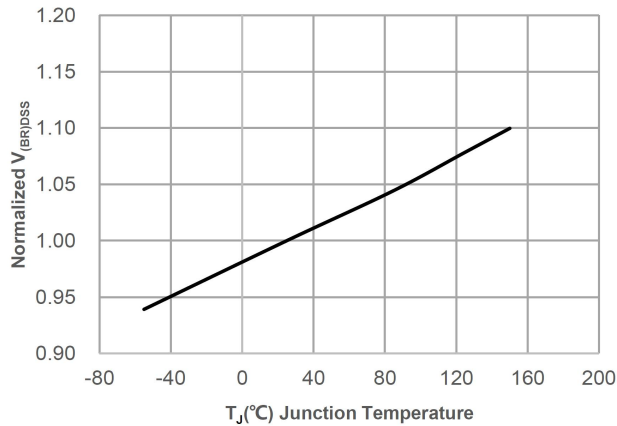
Body Diode Characteristics



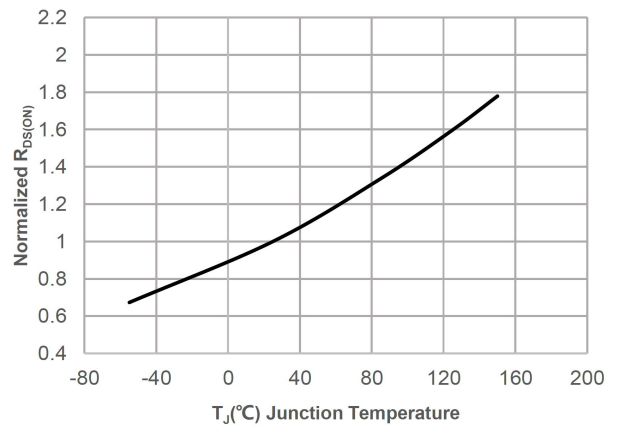
Gate Charge Characteristics



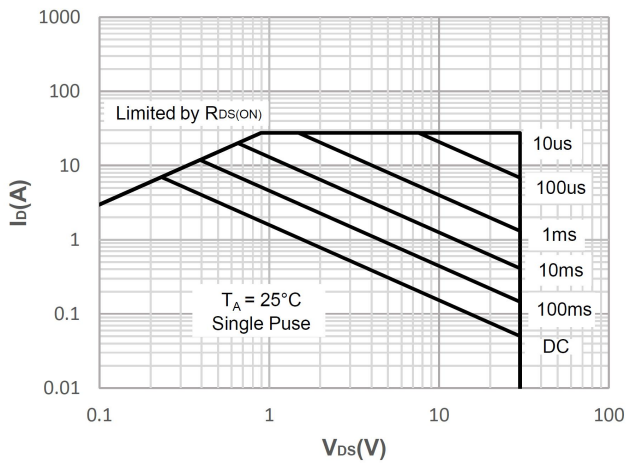
Capacitance Characteristics



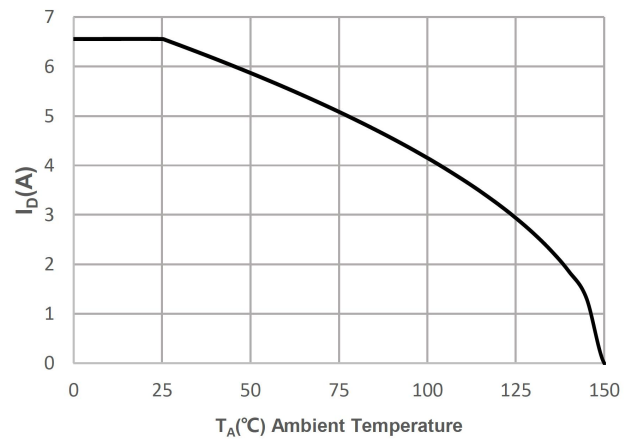
Normalized Breakdown voltage vs. Junction Temperature



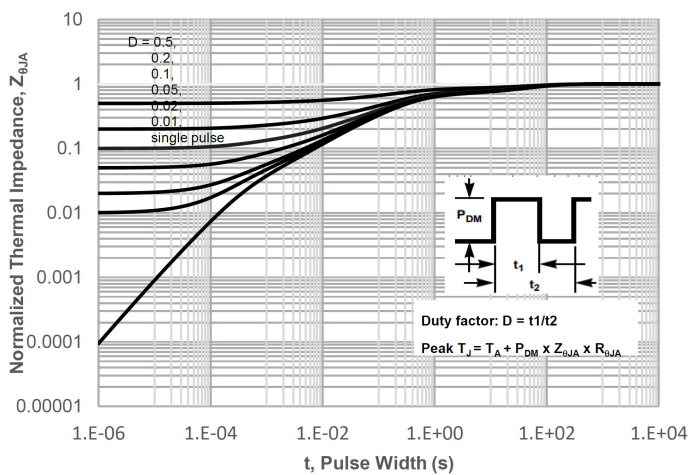
Normalized on Resistance vs. Junction Temperature



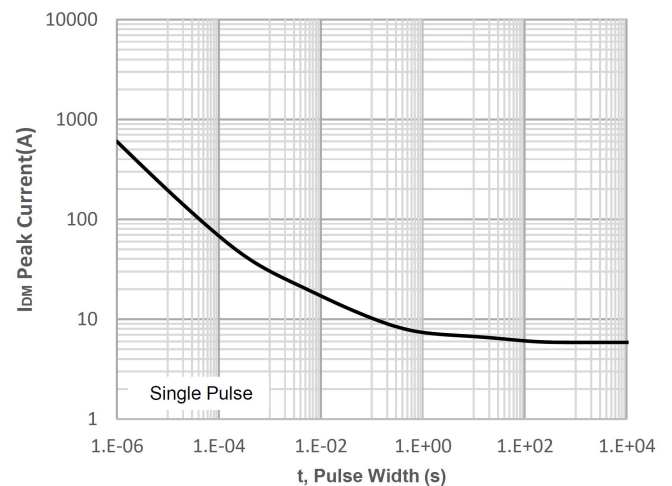
Maximum Safe Operating Area



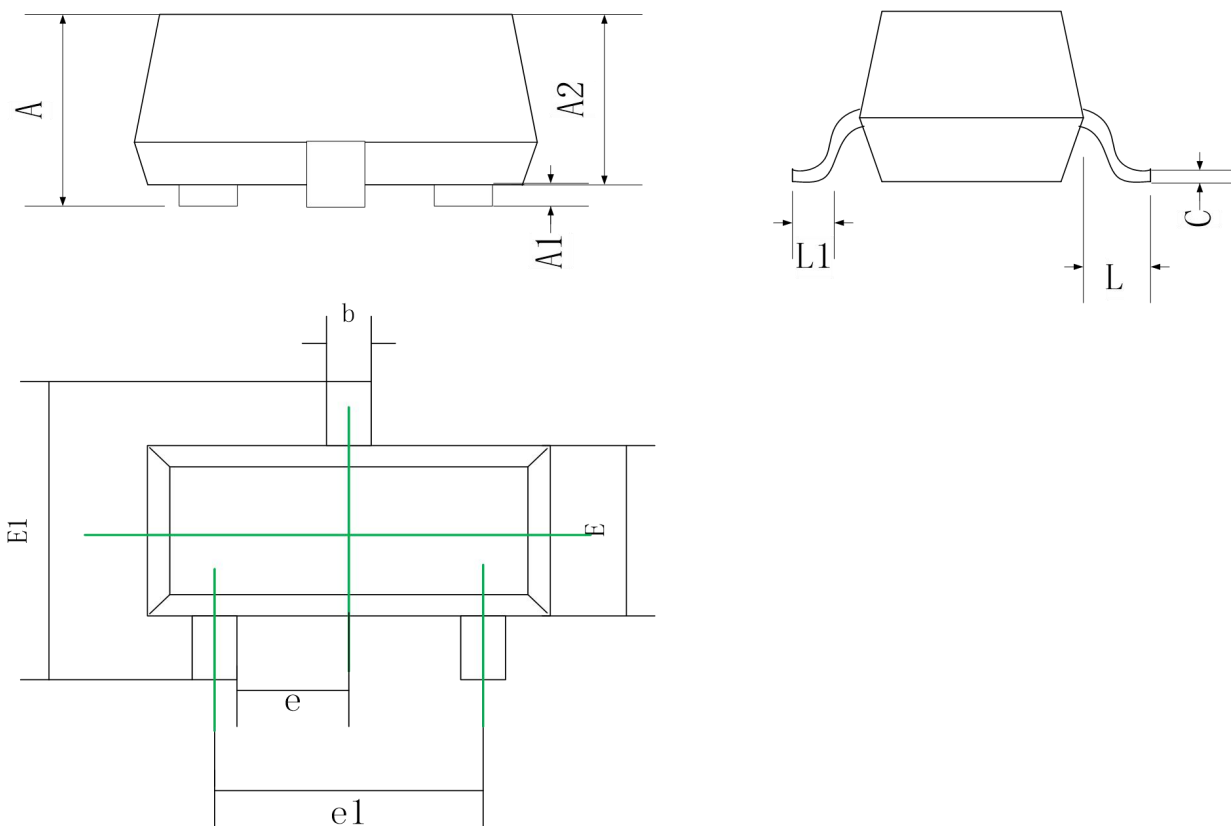
Maximum Continuous Drain Current vs. Ambient Temperature



Normalized Maximum Transient Thermal Impedance



Peak Current Capacity

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
E	1.500	1.700
E1	2.650	2.950
e	0.950 Typ.	
e1	1.800	2.000
L	0.300	0.600
θ	0°	8°