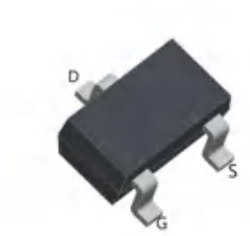
TS3400AE

Single N-Channel Power MOSFET

V_{DSS}（V）	$R_{DS\ (ON)}$	$I_{D(A)}$
30	26mΩ(Typ)@VGS=10V	5.8
	28mΩ(Typ)@VGS=4.5V	

Pin Description



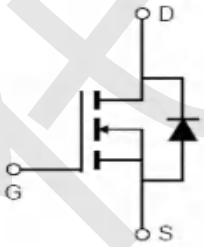
SOT-23

FEATURE:

- TS3400AE uses advanced trench technology

APPLICATIONS:

- Load Switch for Portable Devices
- Power Management



Ordering and Marking Information

Product ID	Marking	Package	Packaging	Quantity
TS3400AE	A09T	SOT23	Tape&Reel	3000

Absolute Maximum Ratings

Symbol	Parameter		Rating	Units
V_{DSS}	Drain-Source Voltage		30	V
V_{GSS}	Gate-Source Voltage		±12	V
I_D	Continuous Drain Current(V_{GS}= -4.5V)	T_A=25°C	5.8	A
		T_A=70°C	3.1	
T_J	Maximum Junction Temperature		150	°C
T_{STG}	Storage Temperature Range		-55 to 150	°C
I_{DM}	Pulsed Drain Current		16	A
P_D	Maximum Power Dissipation	T_A=25°C	1	W
		T_A=70°C	---	
E_{AS}	Avalanche Energy, Single Pulsed		---	mJ
RθJC	Thermal Resistance-Junction to Case		80	°C/W
RθJA	Thermal Resistance-Junction to Ambient		125	°C/W

Electrical Characteristics (T_A=25°C Unless Otherwise Noted)

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
Static Characteristics						
BV_{DSS}	Drain-Source Breakdown Voltage	V_{GS}=0V, I_D=250uA	30	---	---	V
$V_{GS(th)}$	Gate threshold voltage	V_{DS}=V_{GS},I_D=250uA	0.5	0.85	1.2	V
$R_{DS(ON)}$	Drain-Source On-state Resistance	V_{GS}=10V , I_D=5A	---	26	33	mΩ
		V_{GS}=4.5V , I_D=4A	---	28	35	mΩ
		V_{GS}=2.5V , I_D=3A	---	35	45	mΩ
I_{GSS}	Gate-source leakage current	V_{GS}=±12V , V_{DS}=0V	---	---	±100	A
I_{DSS}	Zero gate voltage drain current	V_{DS}=30V,V_{GS}=0V,T_J=25℃	---	---	1	μA
		T_J=55℃	---	---	5	
Dynamic Characteristic						
C_{iss}	Input Capacitance	V_{GS}=0V, V_{DS}=15V, Frequency=1.0MHz	---	630	---	pF
C_{oss}	Output Capacitance		---	76	---	
C_{rss}	Reverse Transfer Capacitance		---	55	---	
Q_G	Gate Total Charge	V_{DS}=15V, V_{GS}=4.5V, I_{DS}=5A	---	6	---	nC
Q_{gs}	Gate-Source charge		---	1.3	---	
Q_{gd}	Gate-Drain charge		---	1.8	---	
$t_{d(on)}$	Turn-on delay time	V_{DD}=15V , V_{GS}=10V , R_G=3Ω, I_D=-3A	---	3	---	ns
t_r	Turn-on Rise Time		---	2.5	---	
$t_{d(off)}$	Turn-off Delay Time		---	25	---	
t_f	Turn-off Fall Time		---	4	---	
R_G	Gate Resistance	V_{GS}=0V,V_{DS}=0V,F=1MHz	---	1	---	Ω
Diode Characteristics						
V_{SD}	Diode Forward Voltage	V_{GS}=0V , I_S=-1A , T_J=25℃	---	0.8	1.2	V
t_{rr}	Reverse Recovery Time	I_{SD}=-4.1A, dI_{SD}/dt=-100A/μs	---	---	---	ns
Q_{rr}	Reverse Recovery Charge		---	---	---	nC

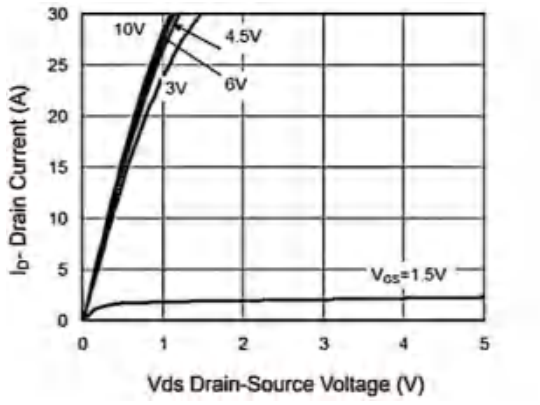


Figure1: Output Characteristics

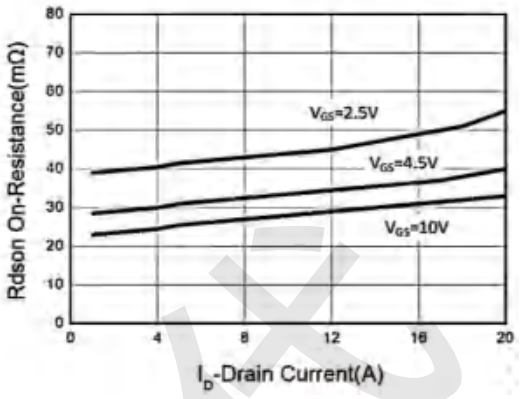


Fig.2 On-Resistance vs. Drain Current

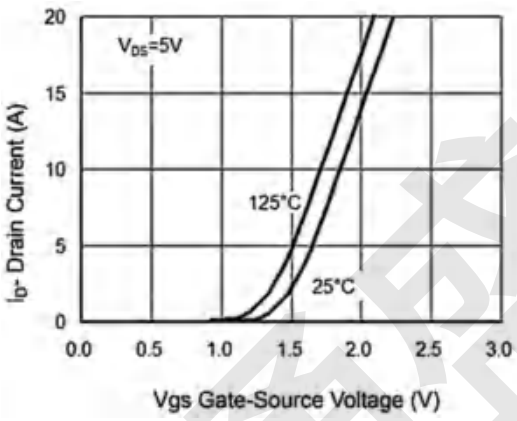


Fig.3 Transfer Characteristic

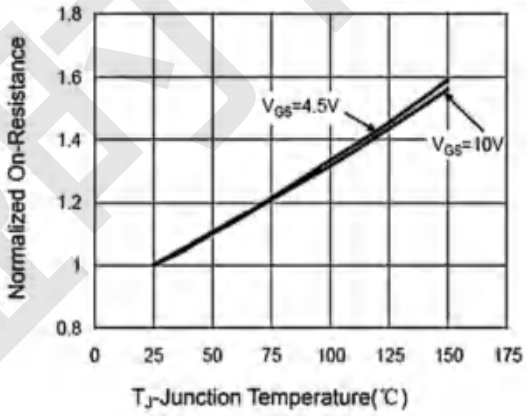


Fig.4 On-Resistance vs. Junction Temperature

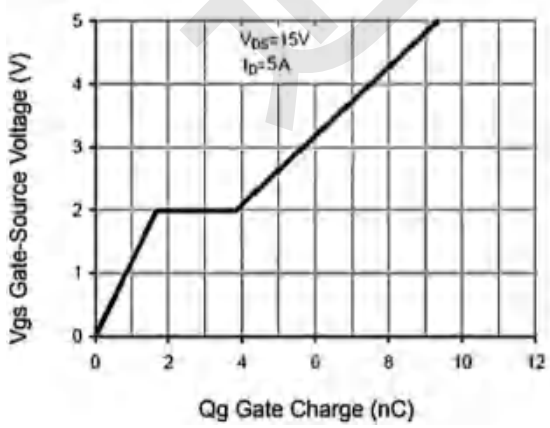


Fig.5 Gate-Charge Characteristic

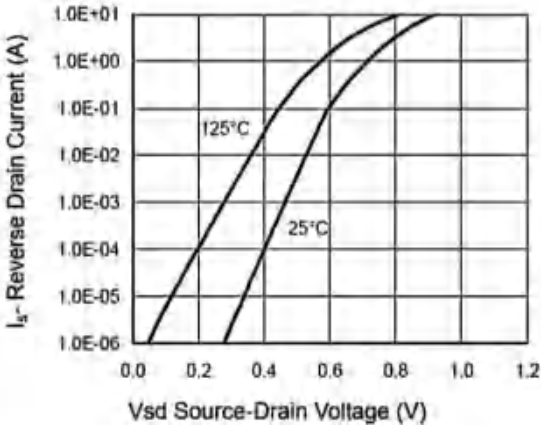


Fig.6 Body Diode Characteristic

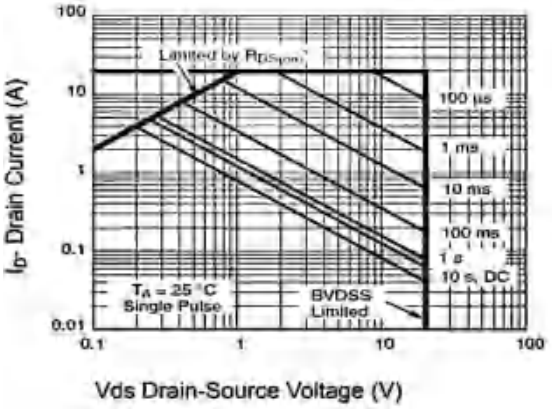


Fig.7 Safe Operation Area

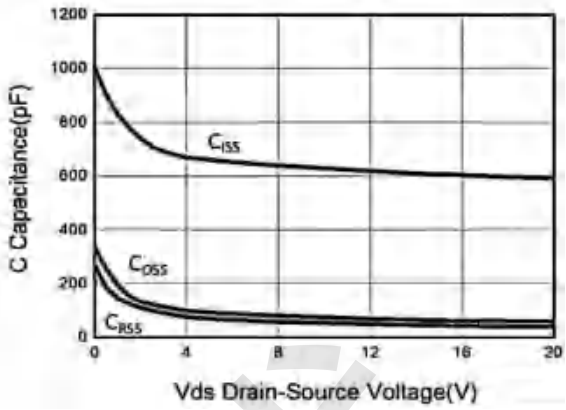


Fig.8 Capacitance Characteristic

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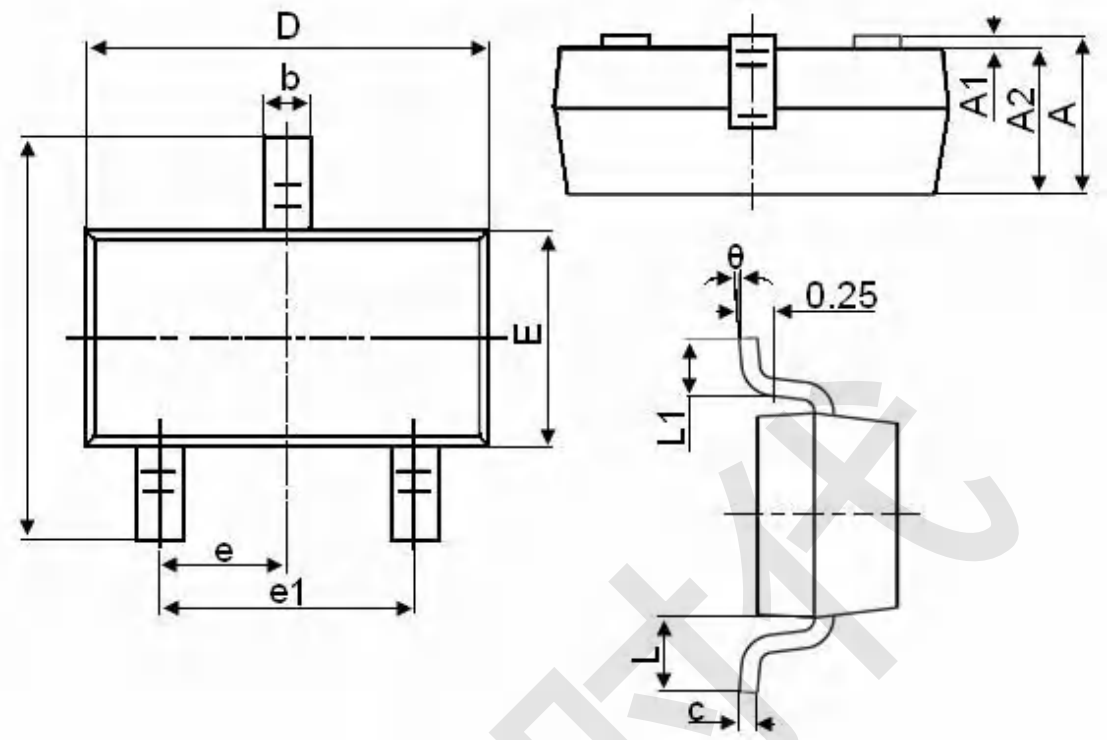

Symbol	Dimensions in Millimeters	
	MIN.	MAX.
A	0.900	1.150
A1	0.000	0.100
A2	0.900	1.050
b	0.300	0.500
c	0.080	0.150
D	2.800	3.000
E	1.200	1.400
E1	2.250	2.550
e	0.950TYP	
e1	1.800	2.000
L	0.550REF	
L1	0.300	0.500
θ	0°	8°

Edition	Date	Change
Rve1.0	2022/11	Initial release

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