



N-Channel MOSFET, 30V, 3.9A, 40mΩ

General Description

The VAM3400AT utilizes the advanced Trench technology and low resistance package to achieve extremely low on-resistance device which makes the system design an efficient and reliable solution for use in a wide variety of applications.

Features

- 30V, 3.9A, max, $R_{DS(on)}=40m\Omega@V_{GS}=10V$
- High Efficiency
- Improved dv/dt, di/dt capability
- 100% EAS Guaranteed
- Green Device

Application

Load Power Switching, VGA, SMPS

Absolute Maximum Ratings

Parameter	Symbol	Value	Unit	Condition
Drain-Source Voltage	V_{DS}	30	V	
Continuous drain current ⁽¹⁾	I_D	3.9 3.1	A	$T_C=25^\circ C$ $T_C=70^\circ C$
Gate-Source Voltage	V_{GS}	± 12	V	Static
Pulsed drain current ⁽²⁾	I_{DM}	16	A	$T_C=25^\circ C$
Power dissipation @ $T_C=25^\circ C$	P_{diss}	1	W	$T_C=25^\circ C$
Storage Temperature Range	T_{STG}	-55 to 150	$^\circ C$	
Operation Junction Temperature Range	T_J	-55 to 150	$^\circ C$	

(1)Limited by $T_{j,max}$.

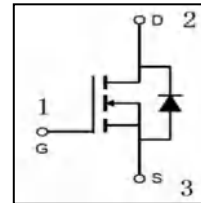
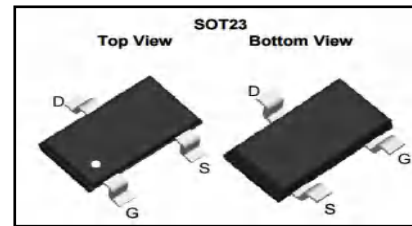
(2)Pulse width T_P limited by $T_{j,max}$

Thermal characteristics

Symbol	Parameter	Min	Typ	Max	Unit
R_{thJC}	Thermal resistance, junction-case, max	---	---	80	$^\circ C/W$
R_{thJA}	Thermal resistance, junction-ambient, max	---	---	125	$^\circ C$

Product Summary

$V_{DS}@T_{j,max}$	30 V
$R_{DS(on)}@V_{GS}=10V, \max$	40 mΩ
I_D Continuous Current	3.9 A





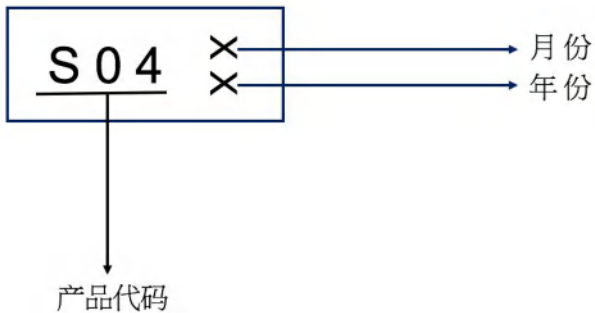
Package and Ordering Information (Marking for 2 Assembly Factory)

Device	Package	Marking	Packing
VAM3400AT	SOT23	S04	3000 ea / Reel
VAM3400AT	SOT23	3400	3000 ea / Reel

Marking Information: SOT23

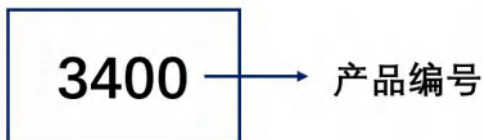
Assembly Factory 1:

(Engineer Samples & Capacity Shortage in middle of 2021)



Assembly Factory 2:

(Due to Factory 1 capacity shortage in 2021, currently production is factory 2 till now)





Electrical Characteristics ($T_j=25^\circ\text{C}$, unless otherwise specified)

Parameter	Symbol	Min	Typ	Max	Unit	Test Condition
Static Characteristic						
Drain-Source breakdown Voltage	$V_{(BR)DSS}$	30	---	---	V	$V_{GS}=0V, I_D=0.25mA$
Gate Threshold Voltage	$V_{(GS)th}$	0.5	0.7	1.2	V	$V_{DS}=V_{GS}, I_D=0.25mA$
Drain-Source on resistance	$R_{(DS)on}$	---	32	40	m Ω	$V_{GS}=4.5V, I_D=3A, T_j=25^\circ\text{C}$
		---	38	47	m Ω	$V_{GS}=2.5V, I_D=2A, T_j=25^\circ\text{C}$
Zero gate voltage drain current	I_{DSS}	---	---	1	μA	$V_{DS}=24V, V_{GS}=0V, T_j=25^\circ\text{C}$
Gate-Source leakage current	I_{GSS}	---	---	± 100	nA	$V_{GS}=\pm 12V, V_{DS}=0V$
Dynamic Characteristic						
Input Capacitance	C_{iss}	---	662	927	pF	$V_{GS}=0V, V_{DS}=15V, f=1MHz$
Output Capacitance	C_{oss}	---	51.3	72	pF	$V_{GS}=0V, V_{DS}=15V, f=1MHz$
Turn-on delay time	$T_{d(on)}$	---	3.2	6.4	nS	$V_{DD}=15V, V_{GS}=4.5V, I_D=3A,$ $R_G=3.3\Omega$; See Figure 8
Rise time	T_r	---	41.8	75	nS	
Turn-off delay time	$T_{d(off)}$	---	21.2	42	nS	
Fall time	T_f	---	6.4	12.8	nS	
Gate Charge Characteristic						
Gate to source charge	Q_{gs}	---	1.26	1.8	nC	$V_{DD}=15V, I_D=3A, V_{GS}=4.5V$
Gate to drain charge	Q_{gd}	---	1.88	2.6	nC	
Gate charge total	Q_g	---	8.34	11.7	nC	
Reverse diode characteristic						
Diode forward voltage	V_{FD}	---	---	1.2	V	$V_{GS}=0V, I_F=1A, T_j=25^\circ\text{C}$
Continuous Source Current	I_{csc}	---	---	5.8	A	$V_G=V_D=0V$, Force current
Pulsed Source Current	I_{sm}	---	---	16	A	
Reverse Recovery Time	t_{rr}	---	6.8	---	nS	$I_F=3A, dI/dt=100A/\mu\text{S}, T_j=25^\circ\text{C}$
Reverse Recovery Charge	Q_{rr}	---	2.3	---	nC	



Electrical Characteristic Diagrams

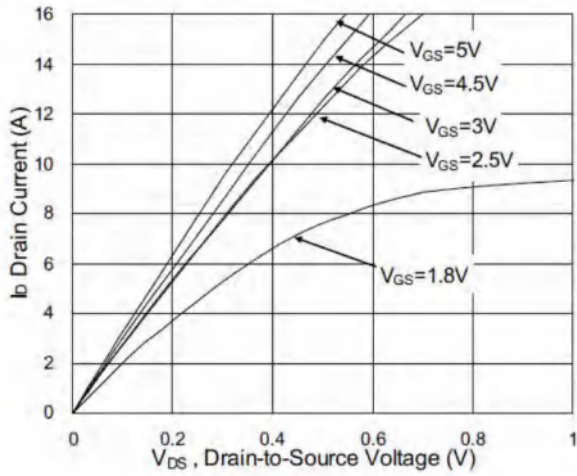


Figure 1 Typical Output Characteristic

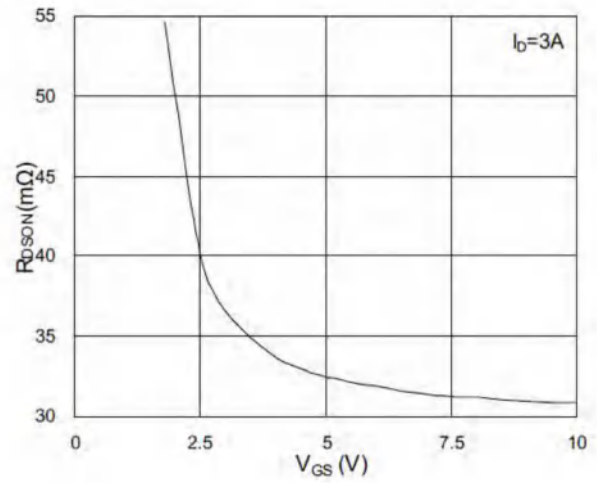


Figure 2 On-Resistance vs. GS voltage

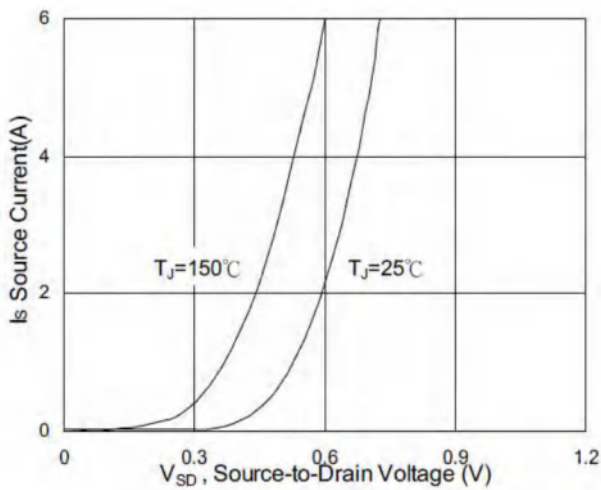


Figure 3 Forward Characteristic of Reverse

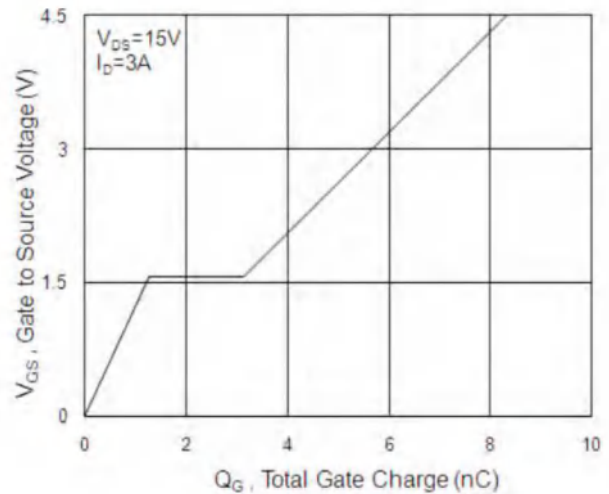


Figure 4 Gate Charge Waveform

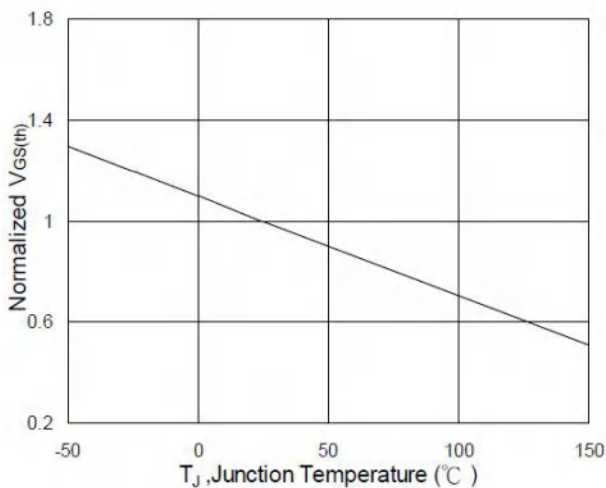


Figure 5 Normalized $V_{GS(th)}$ vs. T_J

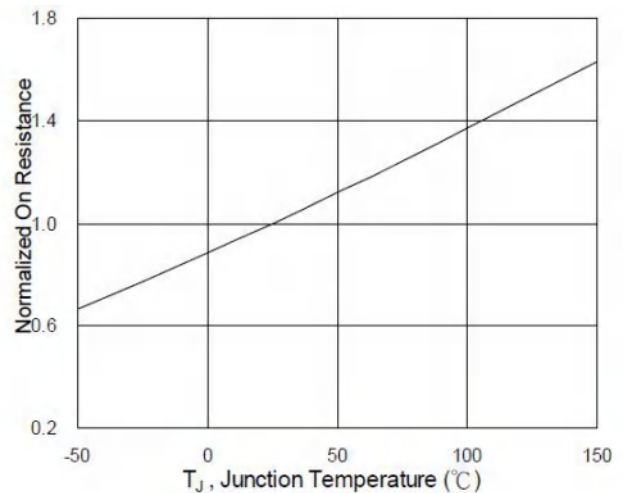


Figure 6 Normalized $R_{ds(on)}$ vs. T_J

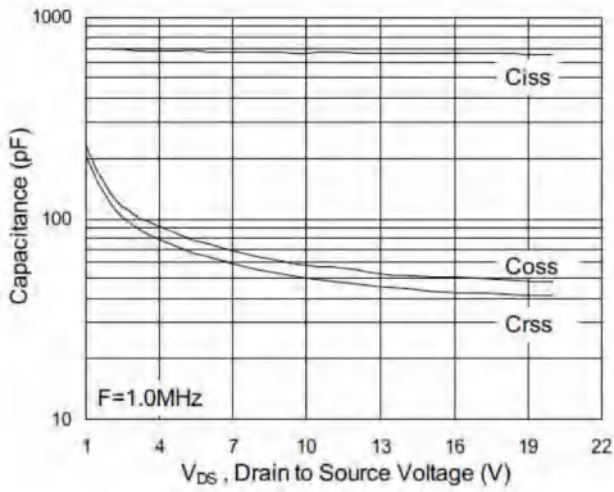


Figure 7 Capacitance Characteristic

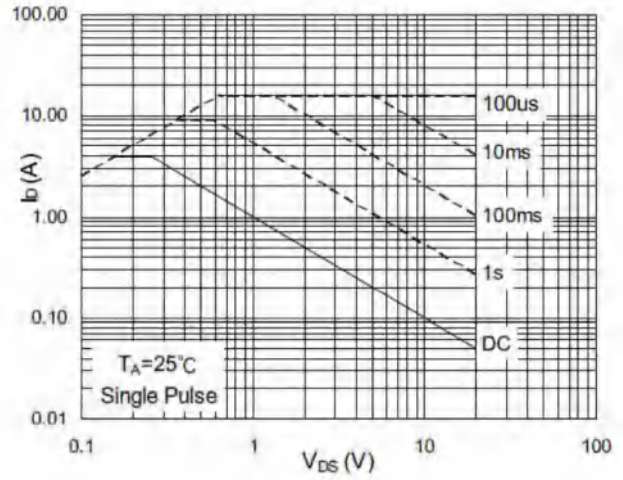


Figure 8 Safe Operating Area

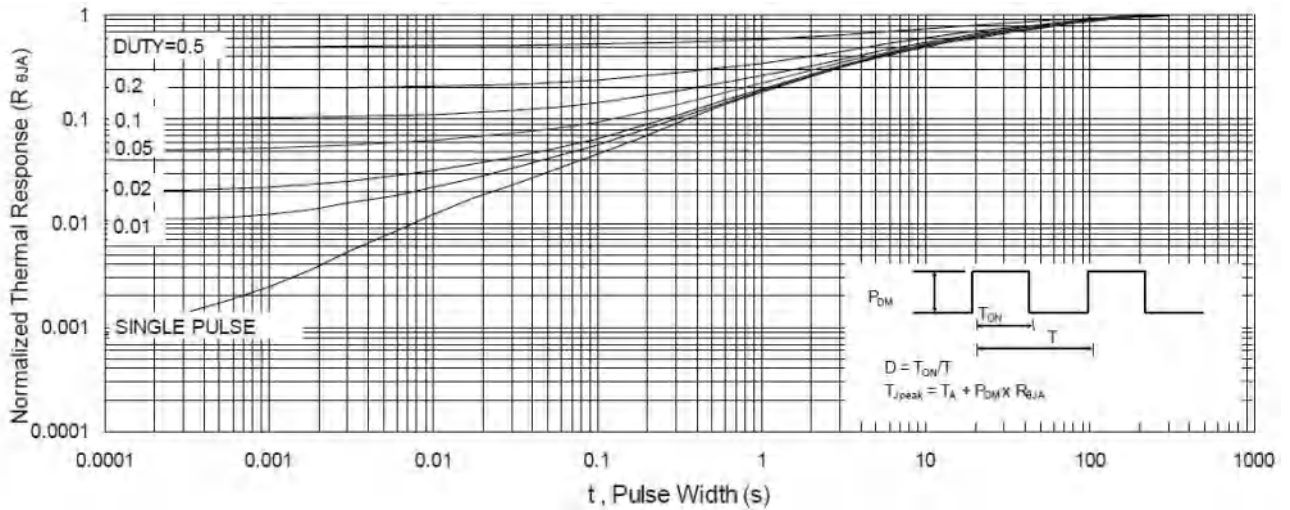


Figure 9 Normalized Maximum Transient Thermal Impedance

Parameter Test Circuits

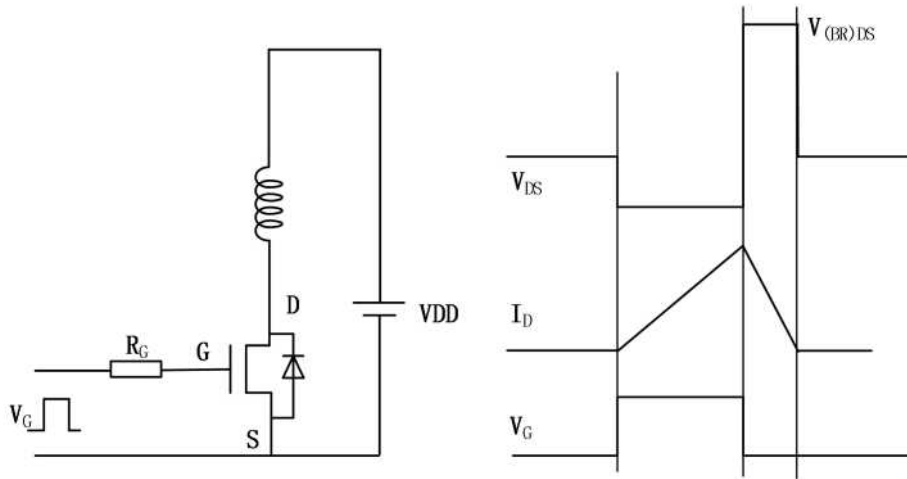


Figure 10 Unclamped Inductive Switching (UIS) Test circuit and waveforms

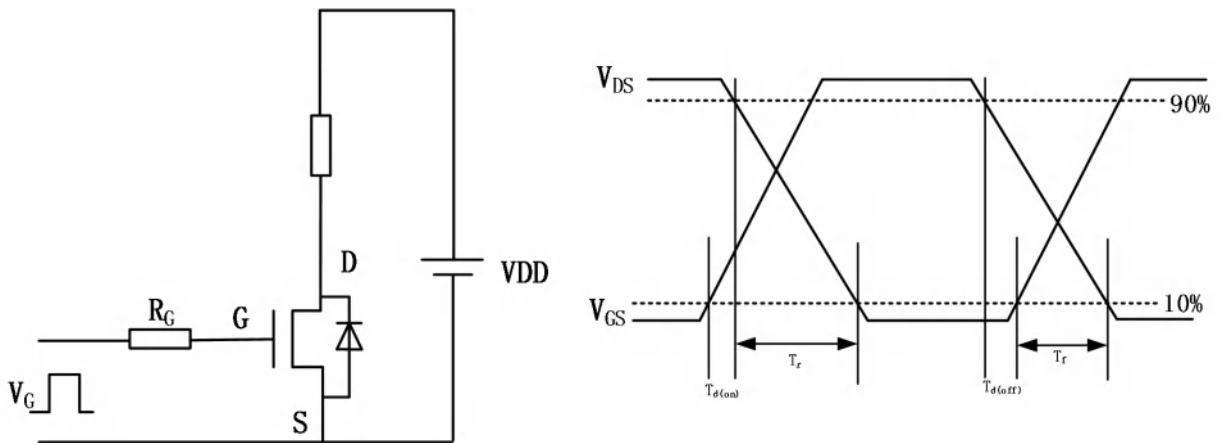


Figure 11 Resistive Switching time Test circuit and waveforms

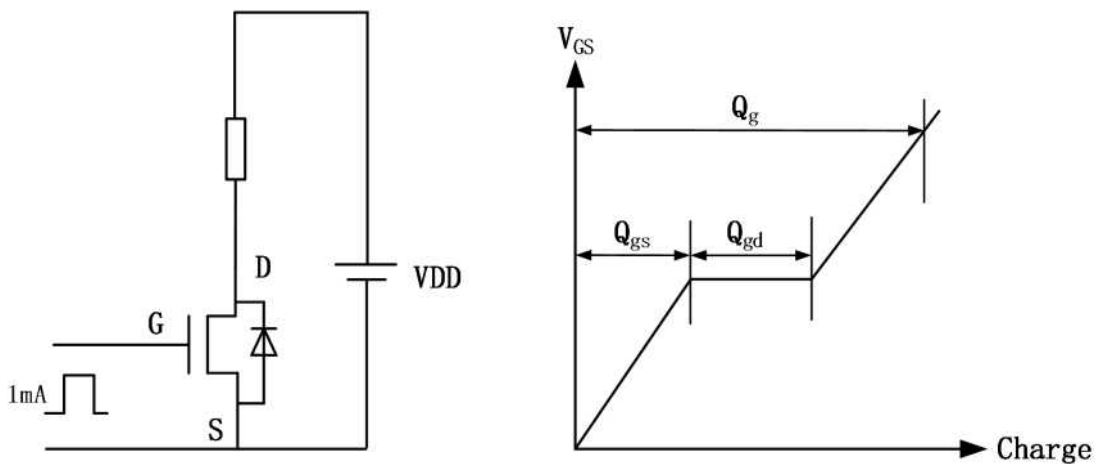
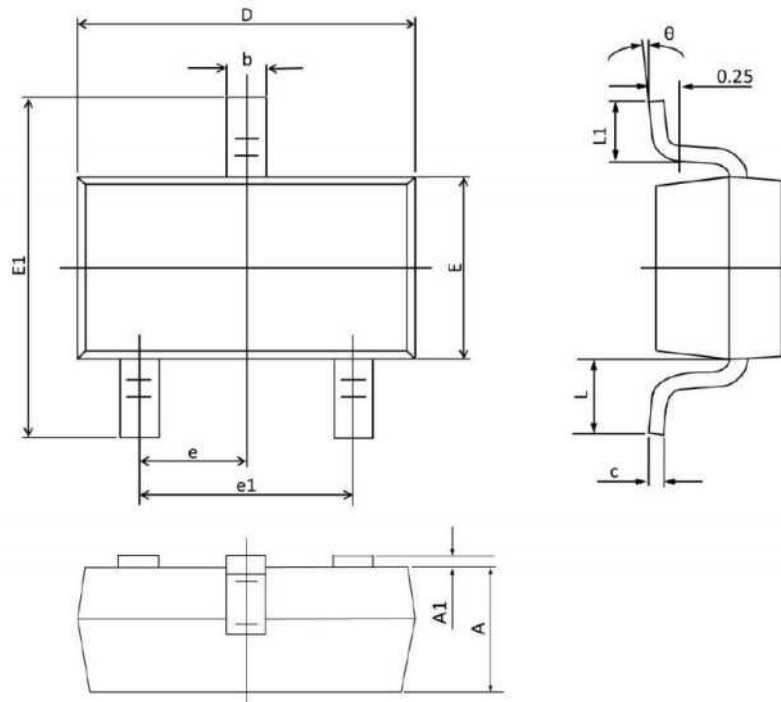


Figure 12 Gate charge Test circuit and waveforms



Package Information



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.900	1.000	0.035	0.039
A1	0.000	0.100	0.000	0.004
b	0.300	0.500	0.012	0.020
c	0.090	0.110	0.003	0.004
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 TYP.		0.037 TYP.	
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	1°	7°	1°	7°

单击下面可查看定价，库存，交付和生命周期等信息

[>>Chipllead\(奇力科技\)](#)