DESCRIPTION

The AM2342 is the N-Channel logic enhancement mode power field effect transistor is produced using high cell density. Advanced trench technology to provide excellent $R_{DS(ON)}$.

This high density process is especially tailored to minimize on-state resistance. These devices are particularly suited for low voltage application, and low in-line power loss are needed in a very small outline surface mount package.

AM2342 is available in SOT-23 packages.

ORDER INFORMATION

Package Type	Part Number	
SOT-23	E3	AM2342E3R
		AM2342E3VR
Note	V: Green Package R : Tape & Reel	
AiT provides all Pb free products Suffix " V " means Green Package		

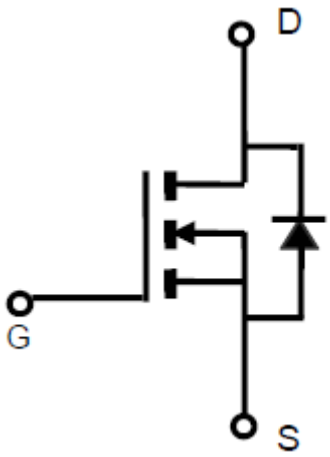
FEATURES

- 20V/5.0A, $R_{DS(ON)}$ =25mΩ(typ.)@V_{GS} =4.5V
- 20V/4.5A, $R_{DS(ON)}$ =34mΩ(typ.)@V_{GS} =2.5V
- 20V/4.0A, $R_{DS(ON)}$ =48mΩ(typ.)@V_{GS} =1.8V
- Super high density cell design for extremely low $R_{DS(ON)}$
- Exceptional on-resistance and Maximum DC current capability
- Available in SOT-23 Package

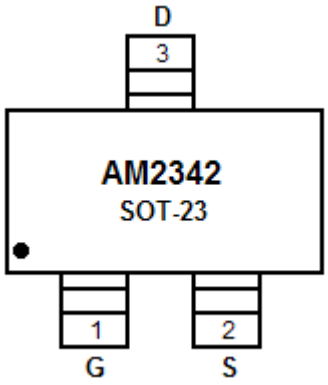
APPLICATION

- Power Management in Note book
- Portable Equipment
- DSC
- LCD Display inverter
- Battery Powered System
- DC/DC Converter

N CHANNEL MOSFET



PIN DESCRIPTION



Top View

Pin #	Symbol	Function
1	G	Gate
2	S	Source
3	D	Drain

ABSOLUTE MAXIMUM RATINGS

T_A = 25℃ Unless otherwise specifiedd

V_{DSS}, Drain-Source Voltage		20V
V_{GSS}, Gate-Source Voltage		±12V
I_D, Continuous Drain Current (T_J=150°C)	V_{GS}=4.5V	5.0A
I_{DM}, Pulsed Drain Current		20A
I_S, Continuous Source Current (Diode Conduction)		1.0A
P_D, Power Dissipation		
T_A=25°C		1.25W
T_A=70°C		0.8W
T_J, Operation Junction Temperature		150℃
T_{STG}, Storage Temperature Range		-55/150°C

Stresses above may cause permanent damage to the device. These are stress ratings only, and functional operation of the device at these or any other conditions beyond those indicated in the Electrical Characteristics is not implied. Exposure to absolute maximum rating conditions for extended periods may affect device reliability.

THERMAL INFORMATION

Parameter	Symbol	Max	Unit
Thermal Resistance-Junction to Ambient	$R_{\theta JA}$	120	℃/W

ELECTRICAL CHARACTERISTICS

T_A = 25℃ Unless otherwise specified

Parameter	Symbol	Conditions	MIN	TYP	MAX	Unit
Static Parameters						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS}=0V,I_D=250μA	20	-	-	V
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS},I_D=250μA	0.4	-	1.0	V
Gate Leakage Current	I_{GSS}	V_{DS}=0V,V_{GS}=±12V	-	-	±100	nA
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=20V,V_{GS}=0V	-		1	μA
		V_{DS}=20V,V_{GS}=0V T_J=55°C	-	-	10	
On-State Drain Current	$I_{D(ON)}$	V_{DS}≧5V,V_{GS}=4.5V	5	-	-	A
Drain-source On-Resistance	$R_{DS(ON)}$	V_{GS}=4.5V,I_D=5.0A	-	25	28	mΩ
		V_{GS}=2.5V,I_D=4.5A	-	34	38	
		V_{GS}=1.8V,I_D=4.0A	-	48	60	
Forward Transconductance	G_{fs}	V_{DS}=15V,I_D=5.0A	-	30	-	S
Source-Drain Doide						
Diode Forward Voltage	V_{SD}	I_S=1.7A,V_{GS}=0V	-	1.0	1.3	V
Dynamic Parameters						
Total Gate Charge	Q_g	V_{DS}=10V	-	10	12	nC
Gate-Source Charge	Q_{gs}	V_{GS}=4.5V	-	1.4	-	
Gate-Drain Charge	Q_{gd}	I_D=5.5A	-	2.2	-	
Input Capacitance	C_{ISS}	V_{DS}=10V	-	580	-	pF
Output Capacitance	C_{OSS}	V_{GS}=0V	-	120	-	
Reverse Transfer Capacitance	C_{RSS}	f=1MHz	-	98	-	
Turn-On Time	td(on)	V_{DD}=10V	-	14	24	nS
	tr	R_L=10Ω	-	40	60	
Turn-Off Time	td(off)	I_D=1.0A	-	45	65	
	tf	V_{GEN}=4.5V R_G=6Ω	-	32	42	

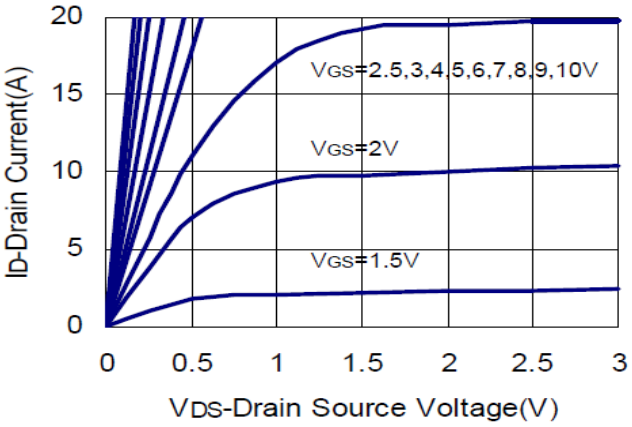
NOTE: 1. Pulse test: pulse width <= 300us, duty cycle<= 2%

2. Static parameters are based on package level with recommended wire-bonding

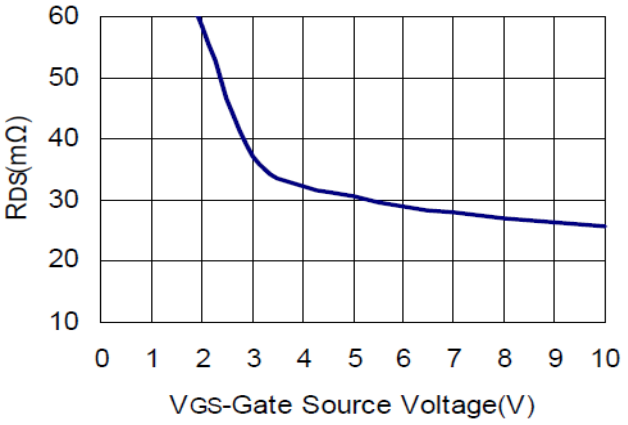
TYPICAL CHARACTERISTICS

T_A=25℃ Unless specified

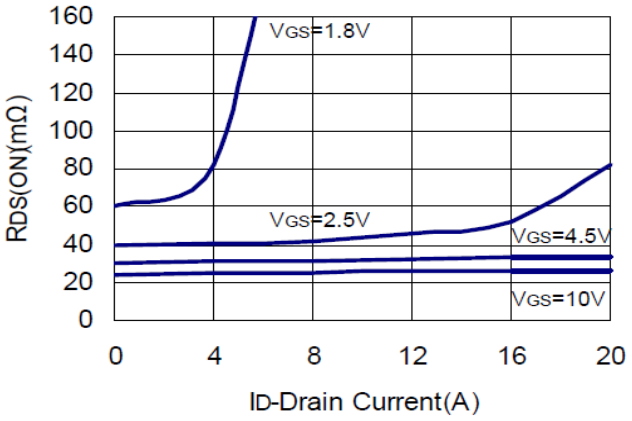
1. Output Characteristics



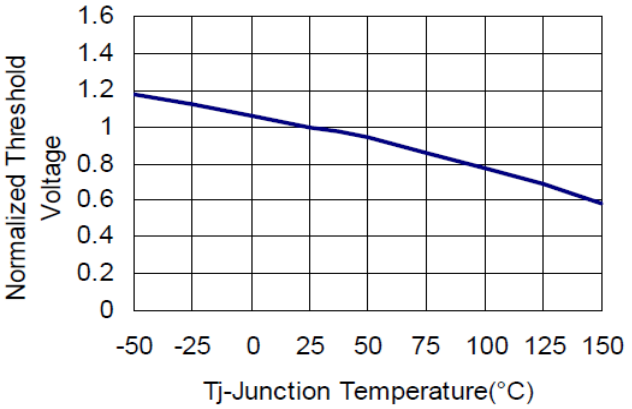
2. Drain-Source On Resistance



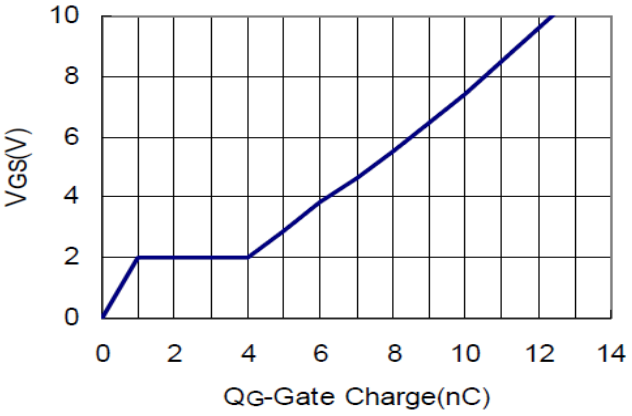
3. Drain Source On Resistance



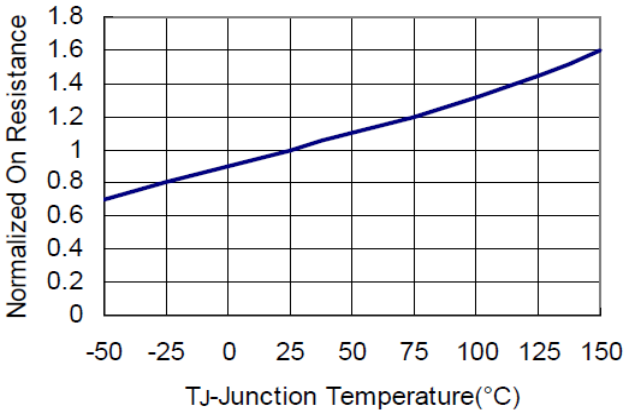
4. Gate Threshold Voltage



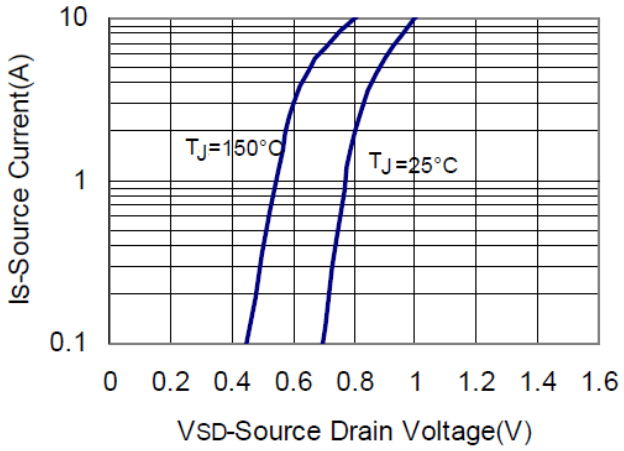
5. Gate Charge



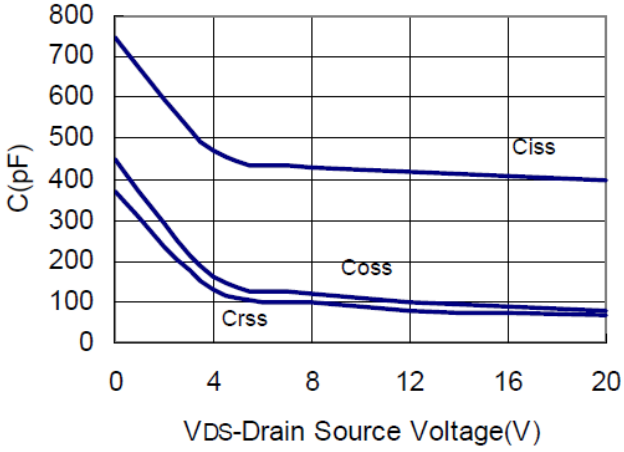
6. Drain Source On Resistance



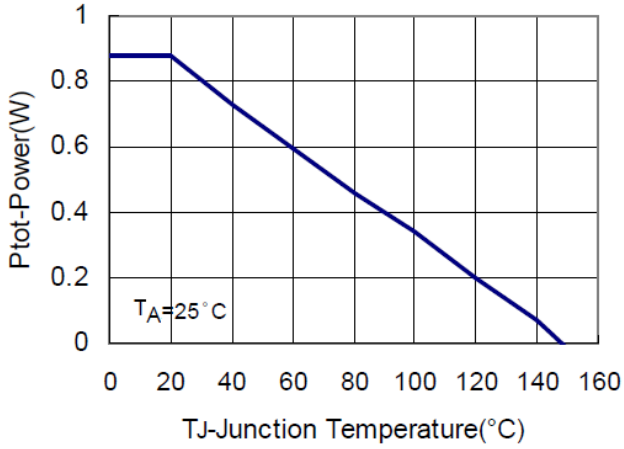
7. Source Drain Diode Forward



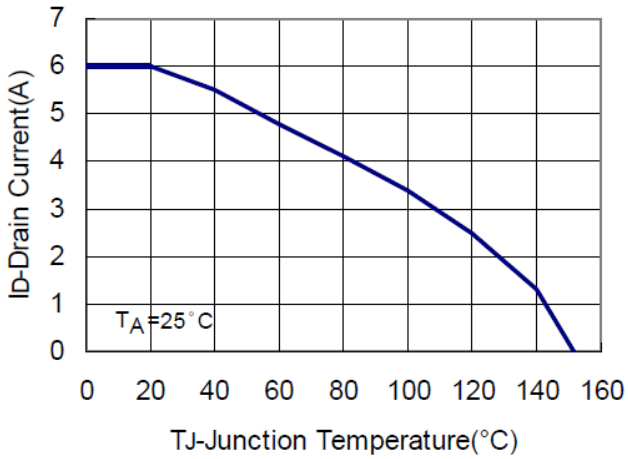
8. Capacitance



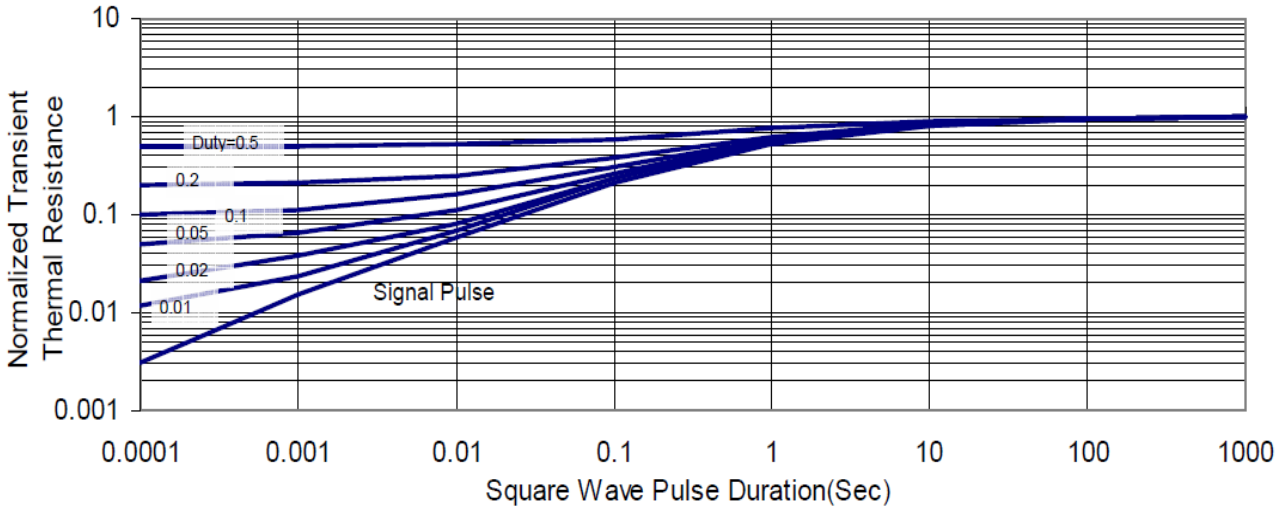
9. Power Dissipation



10. Drain Current

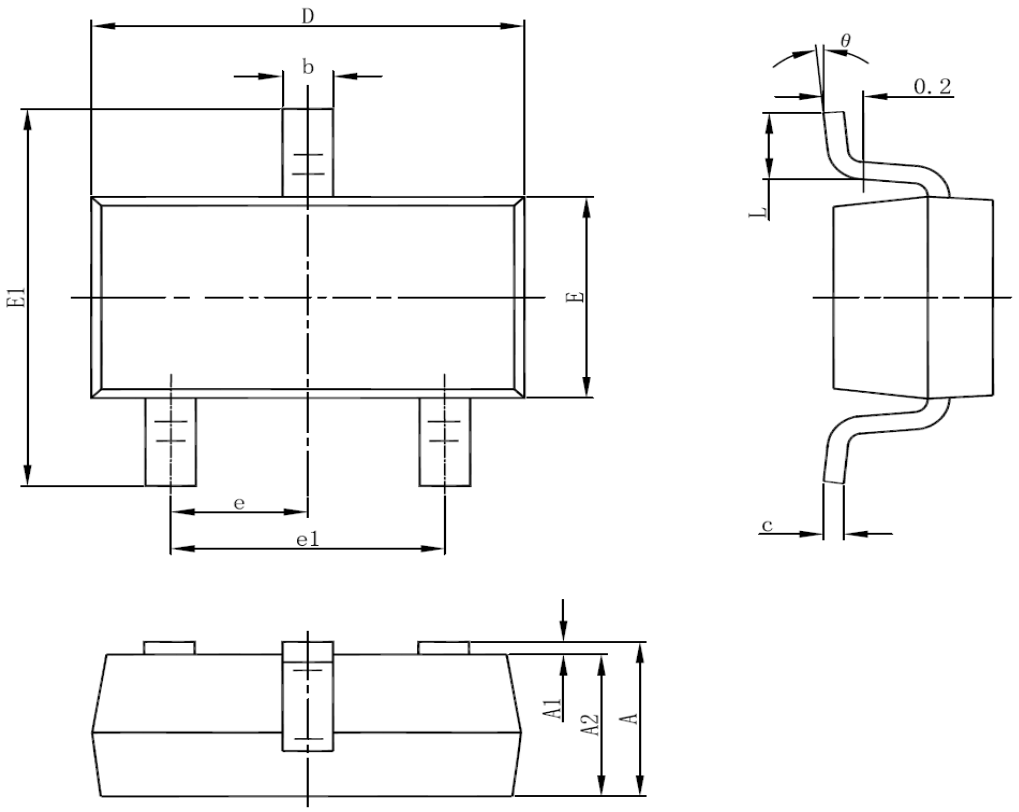


11. Thermal Transient Impedance



PACKAGE INFORMATION

Dimension in SOT-23 Package (Unit: mm)



Symbol	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(BSC)	
e1	1.800	2.000
L	0.300	0.600
θ	0°	8°

IMPORTANT NOTICE

AiT Semiconductor Inc. (AiT) reserves the right to make changes to any its product, specifications, to discontinue any integrated circuit product or service without notice, and advises its customers to obtain the latest version of relevant information to verify, before placing orders, that the information being relied on is current.

AiT Semiconductor Inc.'s integrated circuit products are not designed, intended, authorized, or warranted to be suitable for use in life support applications, devices or systems or other critical applications. Use of AiT products in such applications is understood to be fully at the risk of the customer. As used herein may involve potential risks of death, personal injury, or servere property, or environmental damage. In order to minimize risks associated with the customer's applications, the customer should provide adequate design and operating safeguards.

AiT Semiconductor Inc. assumes to no liability to customer product design or application support. AiT warrants the performance of its products of the specifications applicable at the time of sale.