



DESCRIPTION

The AM3404 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.

The AM3404 is available in SOT-23 Package.

ORDERING INFORMATION

Package Type	Part Number	
SOT-23	E3	AM3404E3R
		AM3404E3VR
Note	R : Tape & Reel V: Green Package	
AiT provides all Pb free products Suffix “ V ” means Green Package		

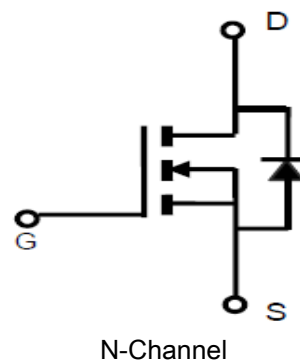
FEATURES

- 30V/6.0A, $R_{DS(ON)} = 20m\Omega$ (typ.) @ $V_{GS} = 10V$
- 30V/4.8A, $R_{DS(ON)} = 27m\Omega$ (typ.) @ $V_{GS} = 4.5V$
- Super high density cell design for extremely low $R_{DS(ON)}$
- Exceptional on-resistance and Maximum DC current capability
- This is a Full Green compliance
- Available in SOT-23 Package

APPLICATIONS

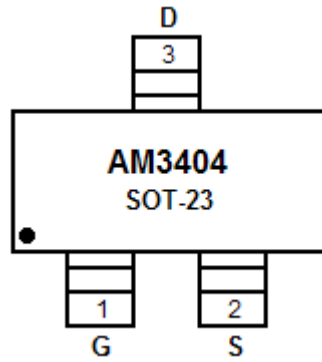
- Power Management in Note book
- Portable Equipment
- DSC
- LCD Display inverter
- Battery Powered System
- DC/DC Converter

P CHANNEL MOSFET





PIN DESCRIPTION



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



ABSOLUTE MAXIMUM RATINGS

T_A = 25°C unless otherwise noted

V _{DSS} , Drain-Source Voltage		30V
V _{GSS} , Gate-Source Voltage		±20V
I _D , Continuous Drain Current (T _J =150°C)	V _{GS} = 10V	6.0A
I _{DM} , Pulsed Drain Current		10A
I _S , Continuous Source Current (Diode Conduction)		5.0A
P _D , Power Dissipation		
T _A = 25°C		1.25W
T _A = 70°C		0.8W
T _J , Operation Junction Temperature		150°C
T _{STG} , Storage Temperature Range		-55°C ~ 150°C

Stress beyond above listed "Absolute Maximum Ratings" may lead permanent damage to the device. These are stress ratings only and operations of the device at these or any other conditions beyond those indicated in the operational sections of the specifications are not implied. Exposure to absolute maximum rating conditions for extended periods may affect device reliability.

THERMAL DATA

Symbol	Parameter	Max	Unit
R _{θJA}	Thermal Resistance-Junction to Ambient	90	°C/W



ELECTRICAL CHARACTERISTICS

T_A = 25°C unless otherwise noted

Parameter	Symbol	Conditions	Min	Typ.	Max	Units
Static Parameters						
Drain-Source Breakdown Voltage	V _{(BR)DSS}	V _{GS} = 0V, I _D = 250μA	30	-	-	V
Gate Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = 250μA	1.0	-	2.0	V
Gate Leakage Current	I _{GSS}	V _{DS} = 0V, V _{GS} = ±20V	-	-	±100	nA
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = 30V, V _{GS} = 0V	-	-	1	μA
		V _{DS} = 30V, V _{GS} = 0V T _J = 55°C	-	-	5	
On-State Drain Current	I _{D(ON)}	V _{DS} ≥ -5V, V _{GS} = -4.5V	10	-	-	A
Drain-source On-Resistance	R _{DS(ON)}	V _{GS} = 10V, I _D = 6.0A	-	20	26	mΩ
		V _{GS} = 4.5V, I _D = 4.8A	-	27	33	
Forward Transconductance	G _{fs}	V _{DS} = 15V, I _D = 5.0A	-	12	-	S
Source-Drain Diode						
Diode Forward Voltage	V _{SD}	I _S = 1.7A, V _{GS} = 0V	-	0.7	1.2	V
Dynamic Parameters						
Total Gate Charge	Q _g	V _{DS} = 20V	-	6	-	nC
Gate-Source Charge	Q _{gs}	V _{GS} = 4.5V	-	1.1	-	
Gate-Drain Charge	Q _{gd}	I _D = 5A	-	2.5	-	
Input Capacitance	C _{iss}	V _{DS} = 15V	-	414	-	pF
Output Capacitance	C _{oss}	V _{GS} = 0V	-	60	-	
Reverse Transfer Capacitance	C _{rss}	f = 1MHz	-	49	-	
Turn-On Time	t _{d(on)}	V _{DD} = 12V	-	7.5	-	nS
	t _r	I _D = 5A	-	45	-	
Turn-Off Time	t _{d(off)}	V _{GS} = 10V	-	10	-	
	t _f	R _G = 3Ω	-	4	-	

NOTE1: Pulse test: pulse width ≤ 300μs, duty cycle ≤ 2%

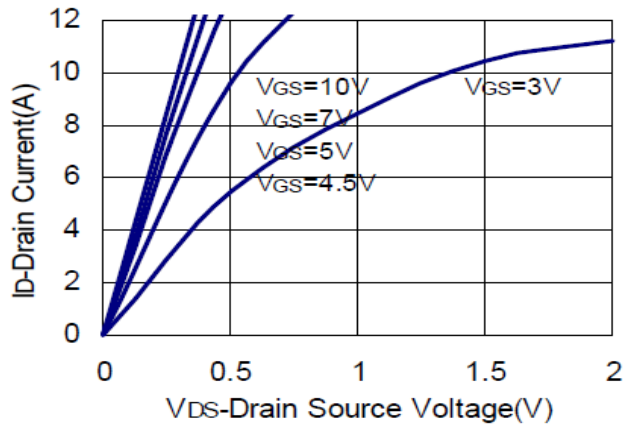
NOTE2: Static parameters are based on package level with recommended wire-bonding



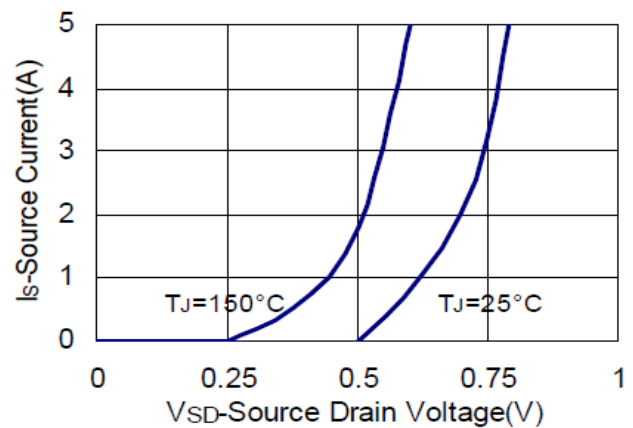
TYPICAL CHARACTERISTICS

25°C Unless Note

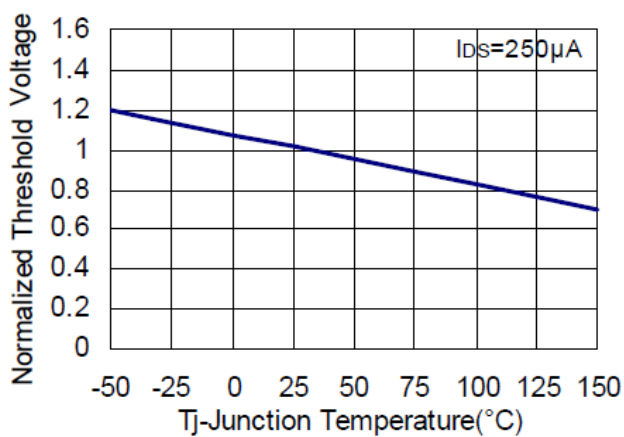
1. Output Characteristics



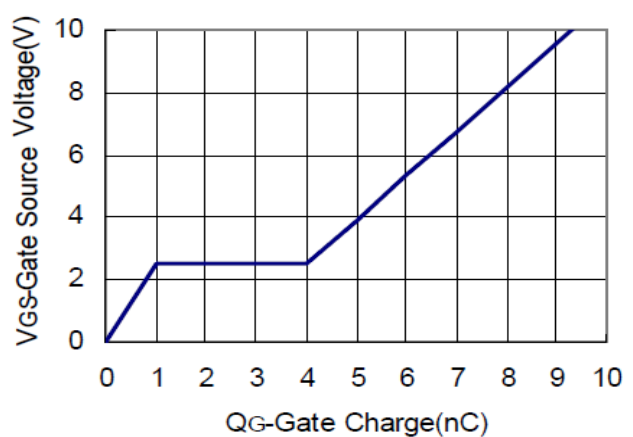
2. Drain-Source On Resistance



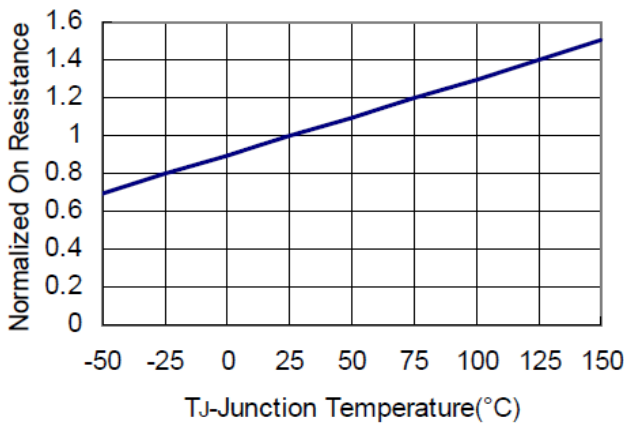
3. Gate Threshold Voltage



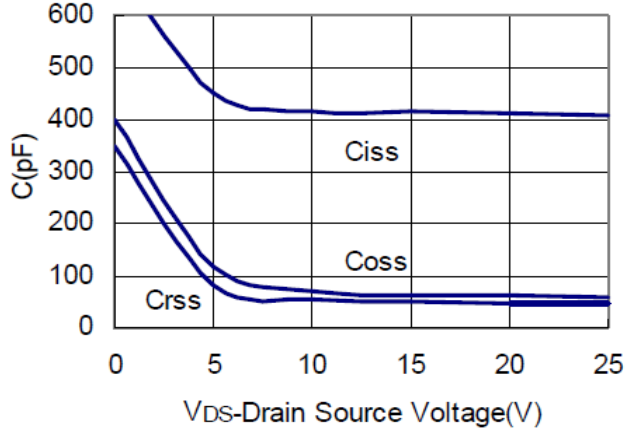
4. Gate Charge



5. Drain Source On Resistance

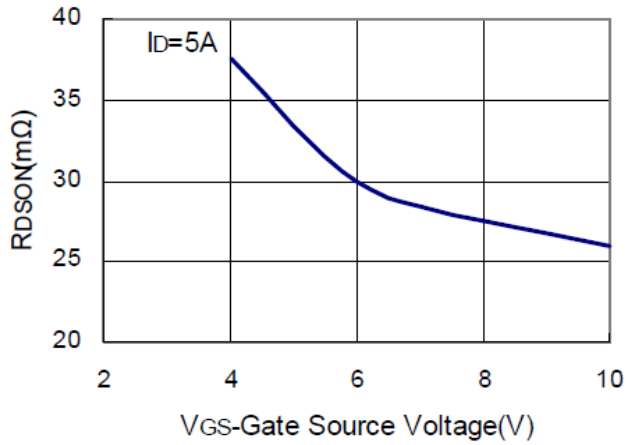


6. Capacitance

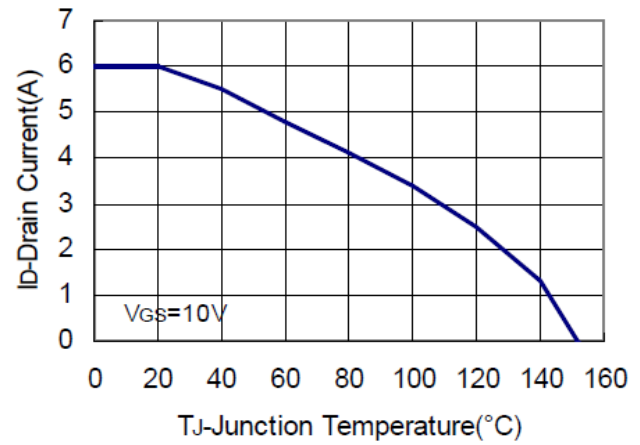




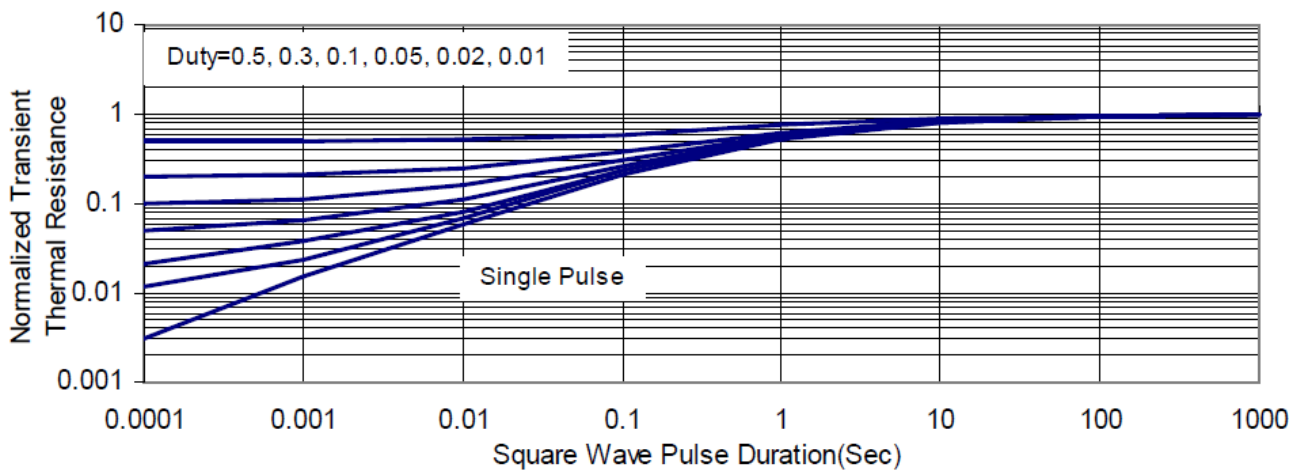
7. Power Dissipation



8. Drain Current



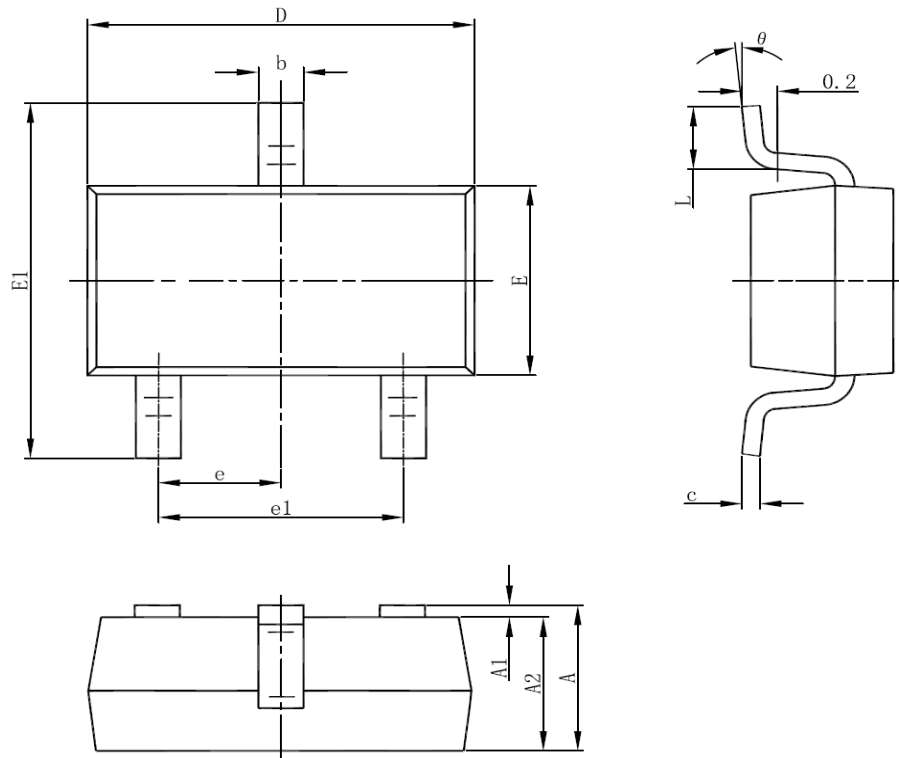
9. Thermal Transient Impedance





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°



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