



DESCRIPTION

The AM2306 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.

AM2306 is available in a SOT-23 package.

ORDERING INFORMATION

Package Type	Part Number	
SOT-23	E3	AM2306E3R
		AM2306E3VR
Note	R: Tape & Reel V: Green Package	
AiT provides all Pb free products Suffix “ V ” means Green Package		

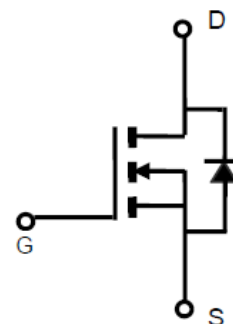
FEATURES

- -30V/3.6A, $R_{DS(ON)} = 45m\Omega$ (typ.)@ $V_{GS} = 10V$
- 30V/2.8A, $R_{DS(ON)} = 55m\Omega$ (typ.)@ $V_{GS} = 4.5V$
- Super high density cell design for extremely low $R_{DS(ON)}$
- Exceptional on-resistance and Maximum DC current capability
- Available in a SOT-23 package.

APPLICATION

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

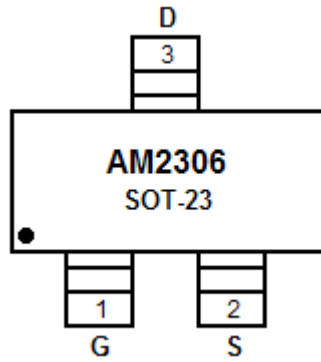
P CHANNEL MOSFET



N-Channel



PIN DESCRIPTION



Top View

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	4.0A
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°C
T _{STG} , Storage Temperature Range		-55/150°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

Parameter	Symbol	Max	Unit
Thermal Resistance-Junction to Ambient	R _{θJA}	120	°C/W



ELECTRICAL CHARACTERISTICS

T_A = 25°C Unless otherwise specified.

Symbol	Parameter	Conditions	Min	Typ.	Max	Units
Static Parameters						
V _{(BR)DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _D =250μA	30	-	-	V
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _D =250μA	1.0	-	2.5	V
I _{GSS}	Gate Leakage Current	V _{DS} =0V, V _{GS} =±20V	-	-	±100	nA
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =30V, V _{GS} =0V	-	-	1	μA
		V _{DS} =30V, V _{GS} =0V T _J =55°C	-	-	10	
I _{D(ON)}	On-State Drain Current	V _{DS} ≥5V, V _{GS} =10V	6	-	-	A
R _{DS(ON)}	Drain-source On-Resistance	V _{GS} =10V, I _D =3.6A	-	45	55	mΩ
		V _{GS} =4.5V, I _D =2.8A	-	55	60	
G _{fs}	Forward Transconductance	V _{DS} =15V, I _D =5.0A	-	4.5	-	S
Source-Drain Diode						
V _{SD}	Diode Forward Voltage	I _S =1.25A, V _{GS} =0V	-	0.8	1.2	V
Dynamic Parameters						
Q _g	Total Gate Charge	V _{DS} =15V	-	4.5	10	nC
Q _{gs}	Gate-Source Charge	V _{GS} =10V	-	0.8	-	
Q _{gd}	Gate-Drain Charge	I _D ≅2.5A	-	1.0	-	
C _{ISS}	Input Capacitance	V _{DS} =15V	-	380	-	pF
C _{OSS}	Output Capacitance	V _{GS} =0V	-	70	-	
C _{RSS}	Reverse Transfer Capacitance	f=1MHz	-	40	-	
t _{d(ON)}	Turn-On Time	V _{DD} =15V	-	8	20	nS
T _r		R _L =15Ω	-	6	16	
t _{d(OFF)}	Turn-Off Time	I _D =1.0A	-	20	35	
T _f		V _{GEN} =10V R _G =6Ω	-	5	15	

NOTE: 1. Pulse test: pulse width ≤ 300μs, duty cycle ≤ 2%

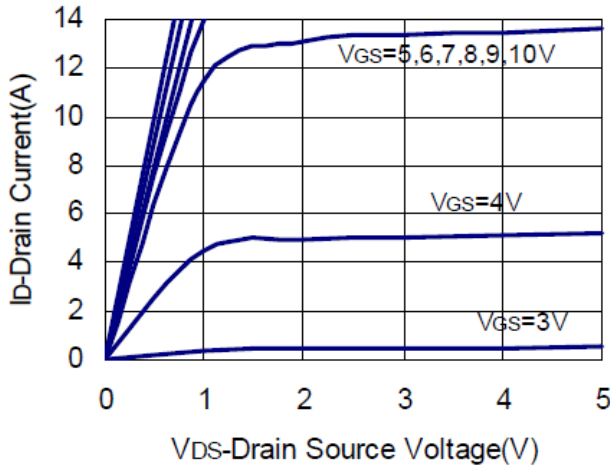
2. Static parameters are based on package level with recommended wire-bonding



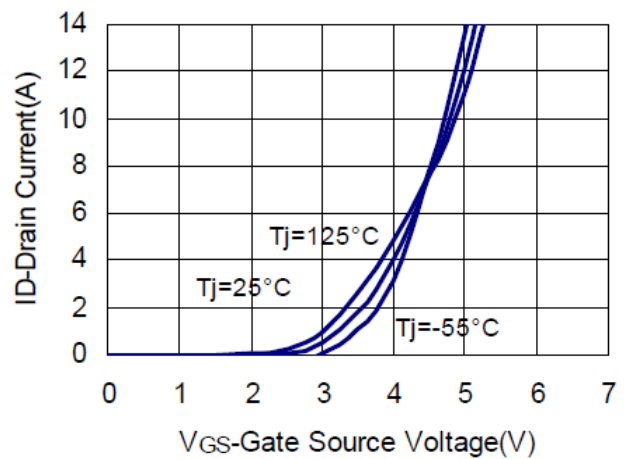
TYPICAL CHARACTERISTICS

25°C Unless Specified

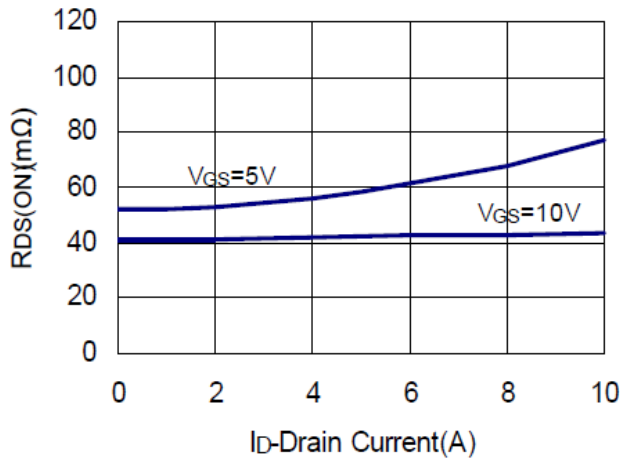
1. Output Characteristics



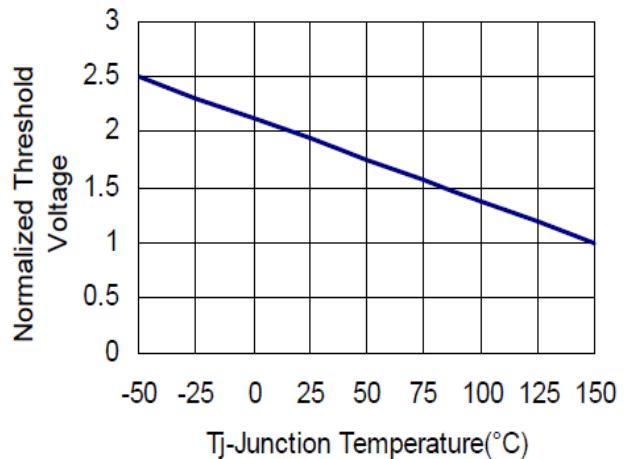
2. Transfer Characteristics



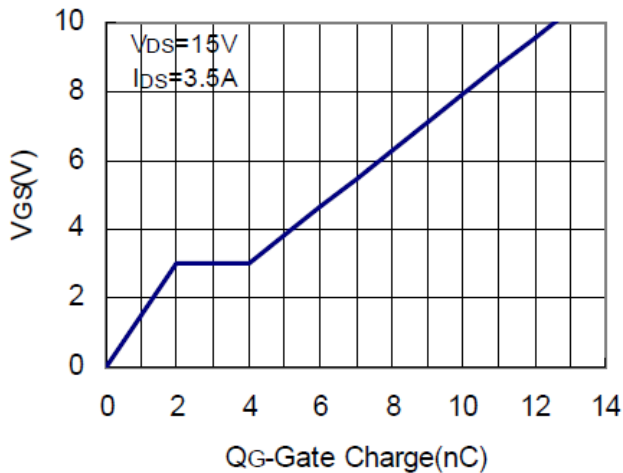
3. Drain Source On Resistance



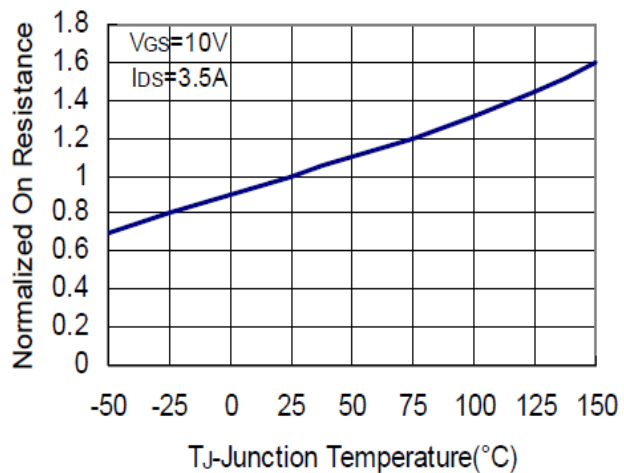
4. Gate Threshold Voltage



5. Gate Charge

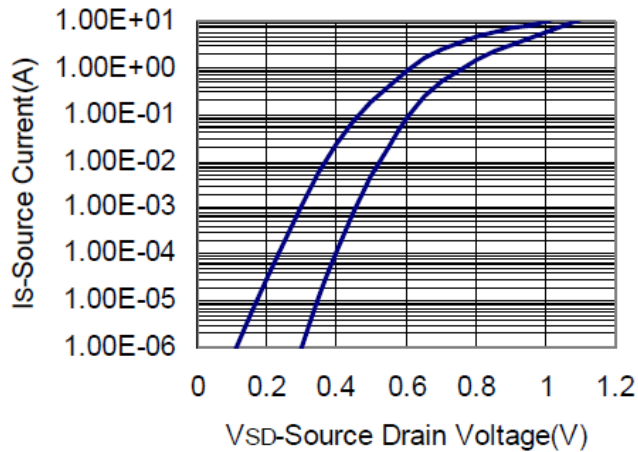


6. Drain Source On Resistance

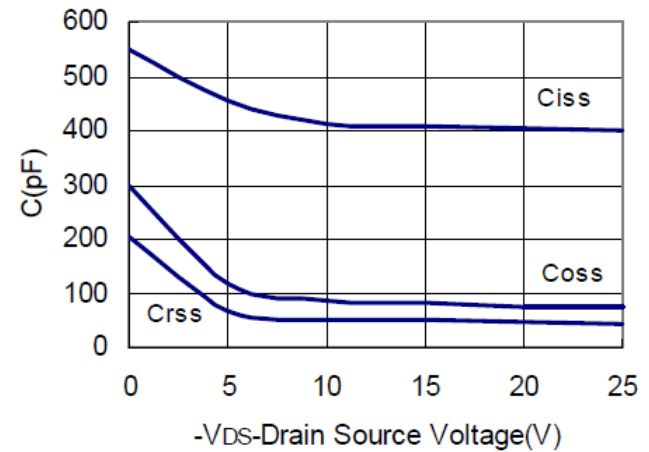




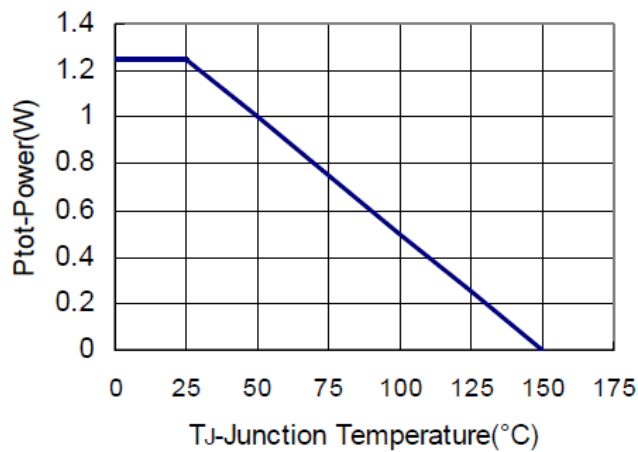
7. Source Drain Diode Forward



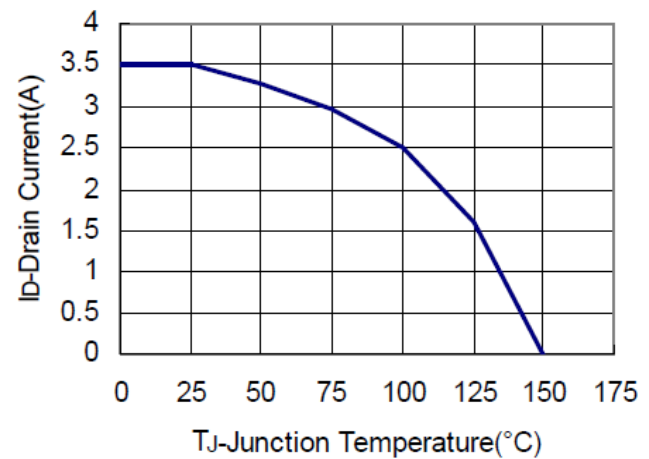
8. Capacitance



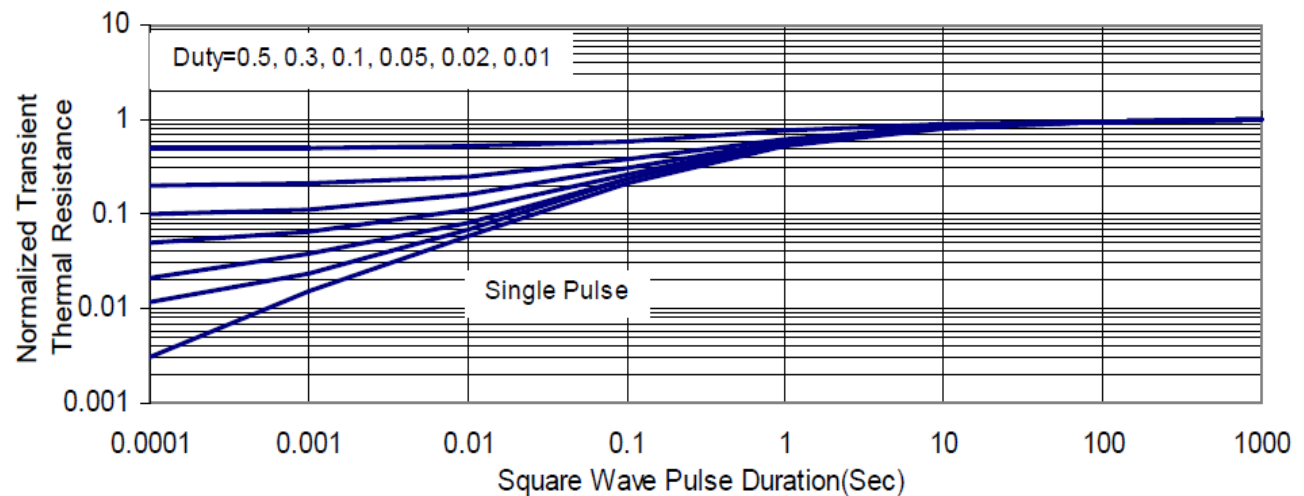
9. Power Dissipation



10. Drain Current



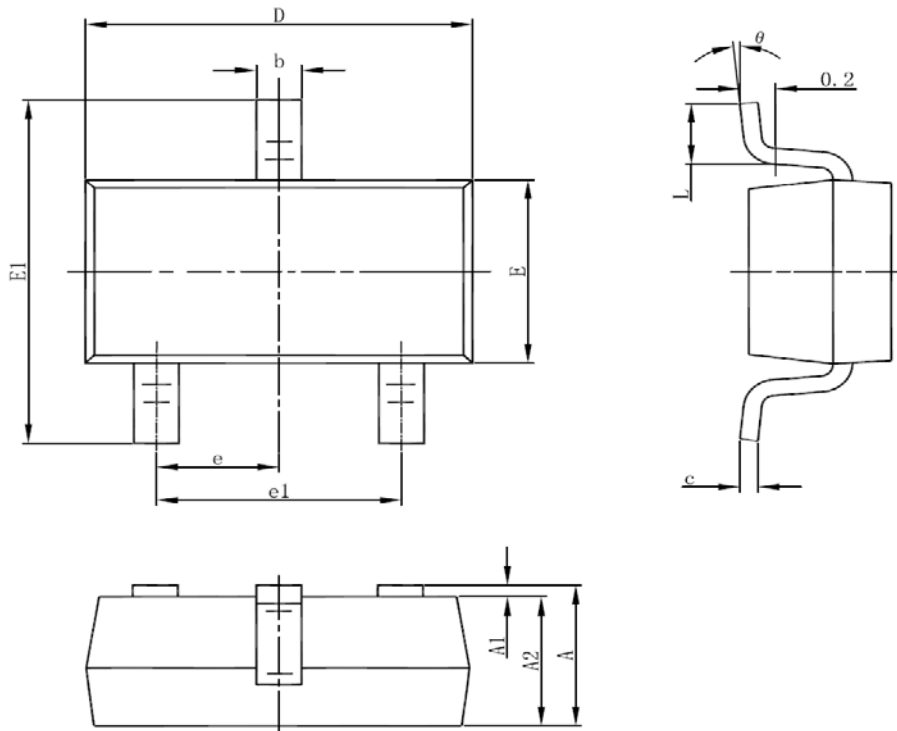
11. Thermal Transient Impedance





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°



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