



DESCRIPTION

The AM3015 uses advanced trench technology to provide excellent $R_{DS(ON)}$, This device is suitable for use as a load switch or in PWM applications.

The AM3015 is available in SOP8 package.

ORDERING INFORMATION

Package Type	Part Number	
SOP8	M8	AM3015M8R
		AM3015M8VR
Note	V: Halogen free Package R: Tape & Reel	
AiT provides all RoHS products Suffix " V " means Halogen free Package		

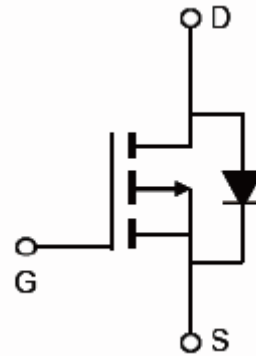
FEATURES

- $V_{DS} = -30V$, $I_D = -15A$
- $R_{DS(ON)} < 12m\Omega @ V_{GS} = -10V$
- High power and current handling capability
- Lead free product is acquired
- Surface mount package
- Available in SOP8 Package

APPLICATION

- PWM applications
- Load switch
- Uninterruptible power supply

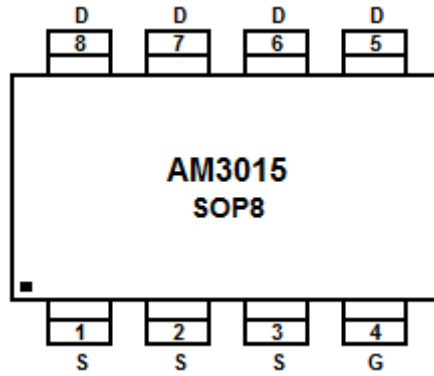
PIN DESCRIPTION



Schematic diagram



PIN DESCRIPTION



Top View

Pin #	Symbol	Function
1	S	Source
2	S	Source
3	S	Source
4	G	Gate
5	D	Drain
6	D	Drain
7	D	Drain
8	D	Drain



ABSOLUTE MAXIMUM RATINGS

T_A=25°C, unless otherwise noted

V _{DS} , Drain-Source Voltage	-30V
V _{GS} , Gate-Source Voltage	±20V
I _D , Drain Current-Continuous	-15A
I _{DM} , Drain Current-Pulsed ^{NOTE1}	-80A
P _D , Maximum Power Dissipation	3.1W
T _J , T _{STG} , Operating Junction and 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.

NOTE1: Repetitive Rating: Pulse width limited by maximum junction temperature.

THERMAL CHARACTERISTICS

Parameter	Symbol	MAX	Units
Thermal Resistance, Junction-to-Ambient ^{NOTE2}	R _{θJA}	40	°C/W

NOTE2: Surface Mounted on FR4 Board, t ≤ 10 sec.



ELECTRICAL CHARACTERISTICS

T_A=25°C, unless otherwise noted

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Off Characteristics						
Drain-Source Breakdown Voltage	BV _{DSS}	V _{GS} =0V, I _D =-250μA	-30	-33	-	V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =-30V, V _{GS} =0V	-	-	-1	μA
Gate-Body Leakage Current	I _{GSS}	V _{GS} =±20V, V _{DS} =0V	-	-	±100	nA
On Characteristics NOTE3						
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =-250μA	-1.0	-1.5	-2.2	V
Drain-Source On-State Resistance	R _{DS(ON)}	V _{GS} =-10V, I _D =-15A	-	8.5	12	mΩ
Forward Transconductance	g _{FS}	V _{DS} =-5V, I _D =-15A	30	-	-	S
Dynamic Characteristics NOTE4						
Input Capacitance	C _{ISS}	V _{DS} =-15V, V _{GS} =0V, F=1.0MHz	-	2900	-	PF
Output Capacitance	C _{OSS}		-	410	-	PF
Reverse Transfer Capacitance	C _{RSS}		-	280	-	PF
Switching Characteristics NOTE4						
Turn-on Delay Time	t _{D(ON)}	V _{DD} =-15V, I _D =-10A, V _{GS} =-10V, R _{GEN} =3Ω	-	15	-	nS
Turn-on Rise Time	t _R		-	11	-	nS
Turn-Off Delay Time	t _{D(OFF)}		-	44	-	nS
Turn-Off Fall Time	t _F		-	21	-	nS
Total Gate Charge	Q _G	V _{DS} =-15V, I _D =-10A, V _{GS} =-10V	-	48	-	nC
Gate-Source Charge	Q _{GS}		-	12	-	nC
Gate-Drain Charge	Q _{GD}		-	14	-	nC
Drain-Source Diode Characteristics						
Diode Forward Voltage	V _{SD}	V _{GS} =0V, I _S =-2A	-	-	-1.2	V

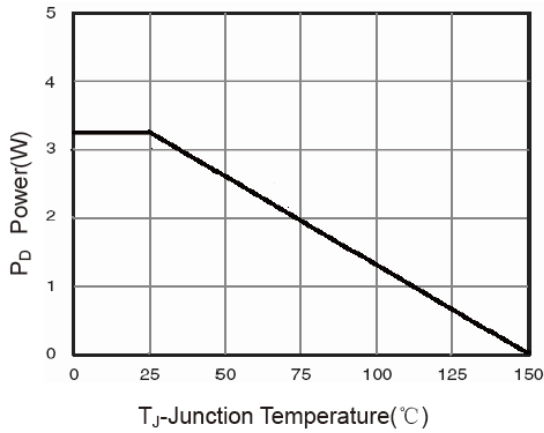
NOTE3: Pulse Test: Pulse Width ≤ 300μs, Duty Cycle ≤ 2%.

NOTE4: Guaranteed by design, not subject to production

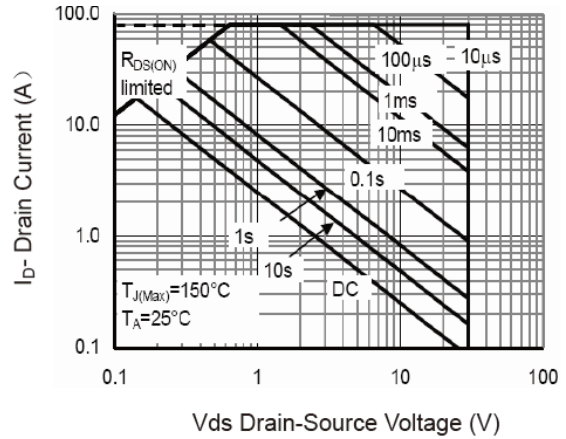


TYPICAL PERFORMANCE CHARACTERISTICS

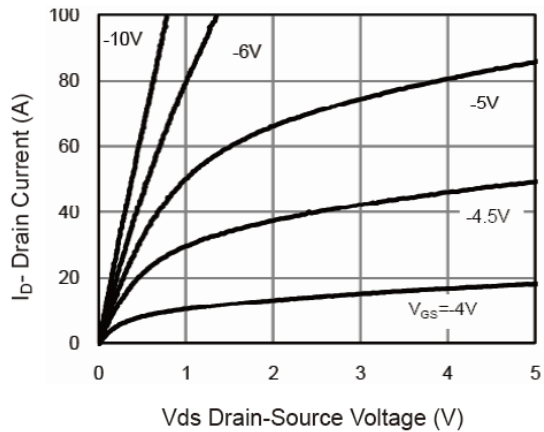
1. Power Dissipation



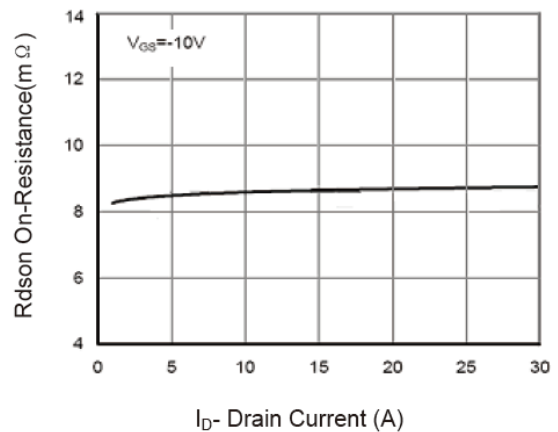
2. Safe Operation Area



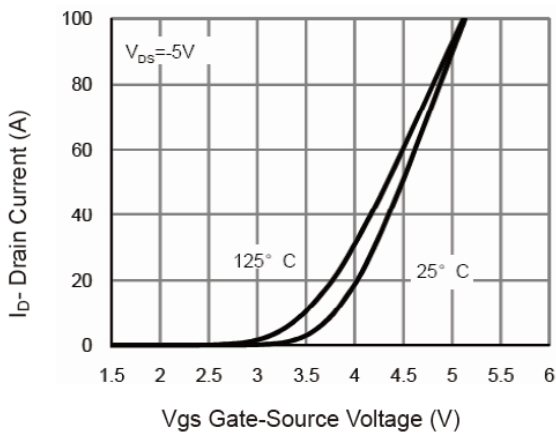
3. Output Characteristics



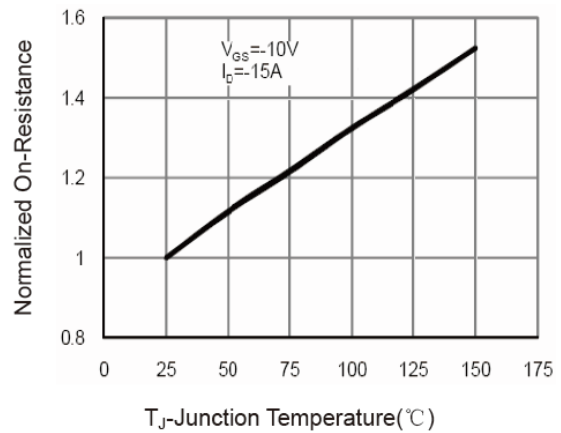
4. Drain-Source On-Resistance



5. Transfer Characteristics

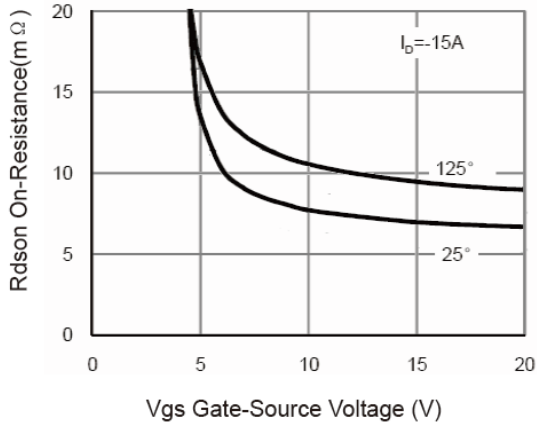


6. Drain-Source On-Resistance

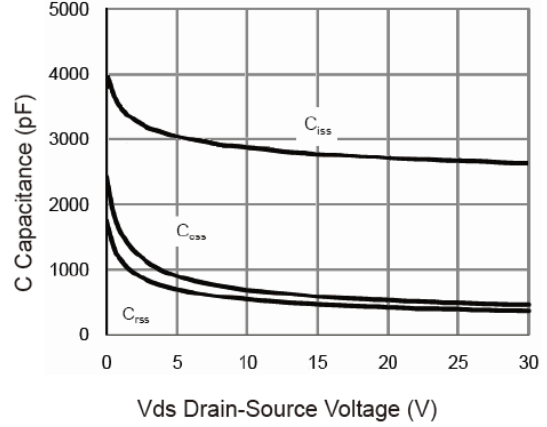




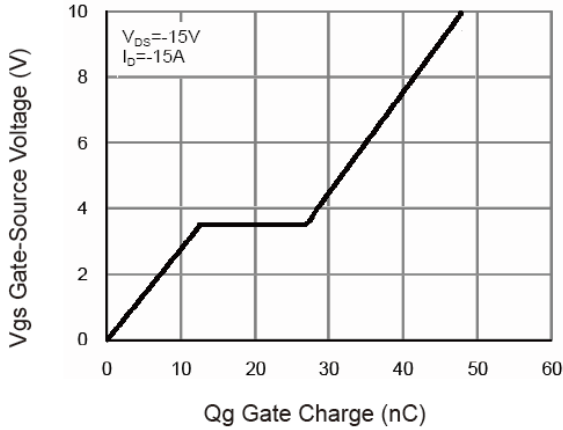
7. $R_{ds(on)}$ vs. V_{gs}



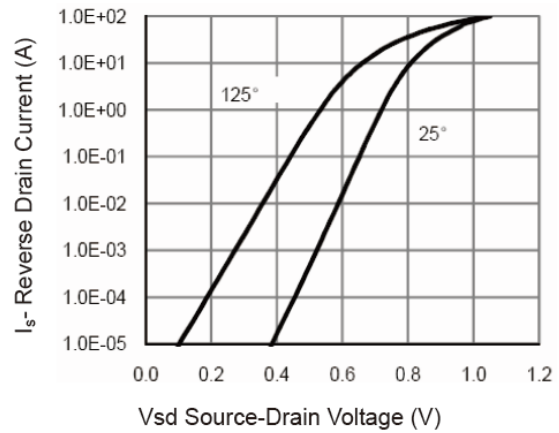
8. Capacitance vs. V_{ds}



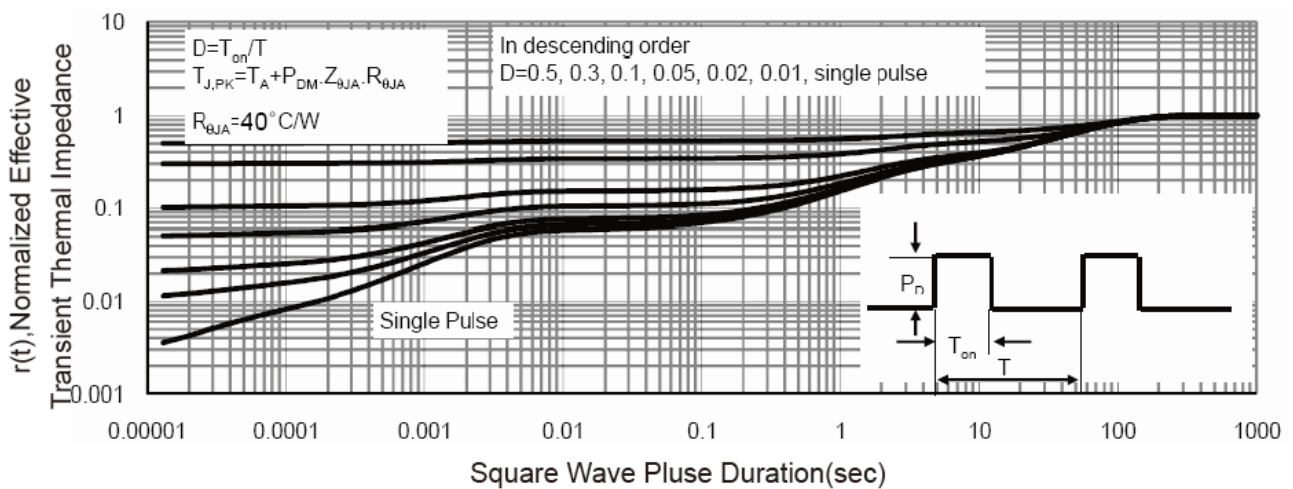
9. Gate Charge



10. Source- Drain Diode Forward



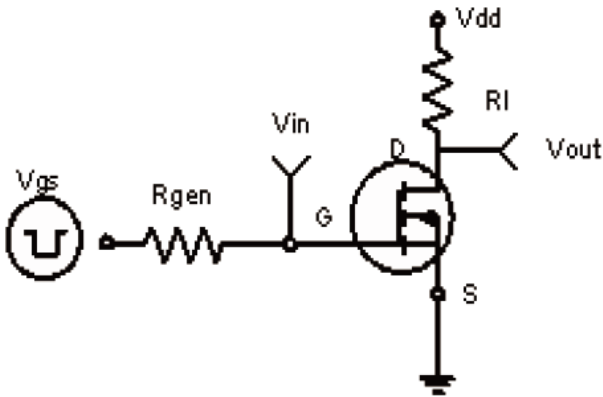
11. Normalized Maximum Transient Thermal Impedance



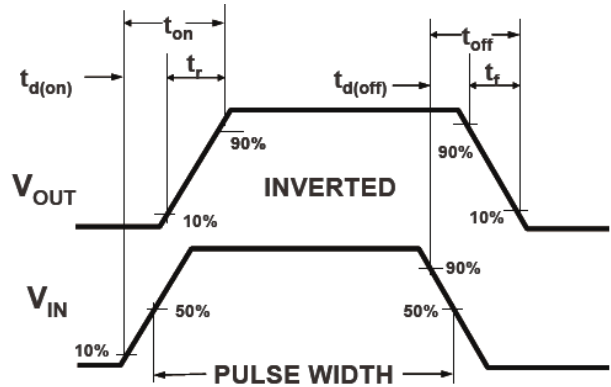


DETAILED INFORMATION

Typical Electrical and Thermal Characteristics



Switching Test Circuit

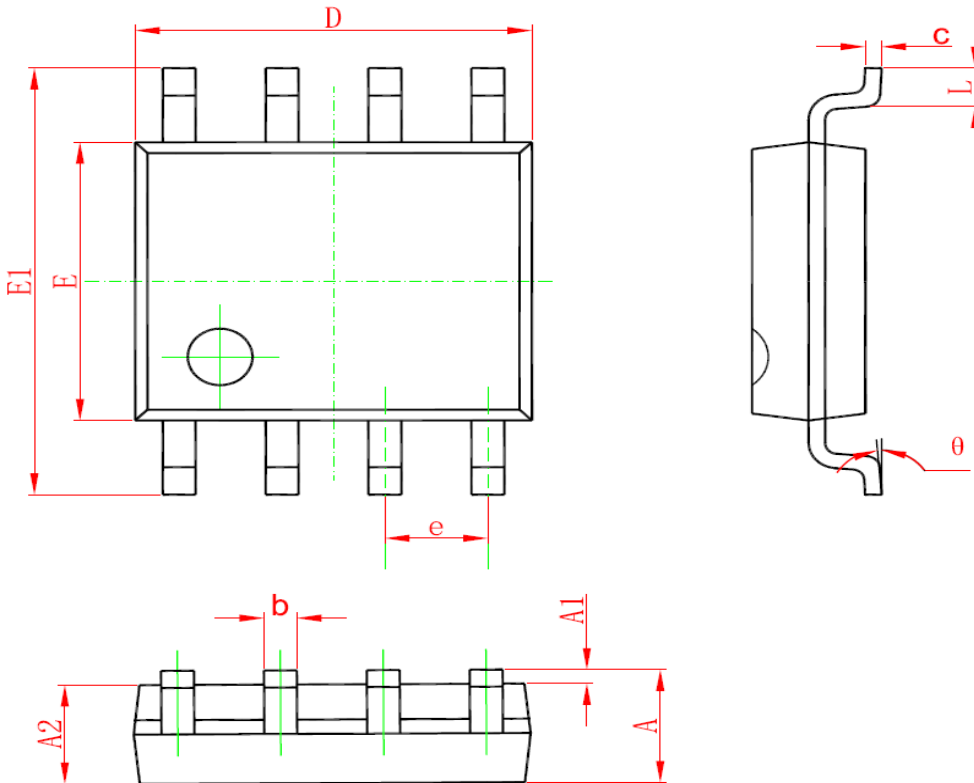


Switching Waveforms



PACKAGE INFORMATION

Dimension in SOP8 (Unit: mm)



Symbol	Min	Max
A	1.350	1.750
A1	0.100	0.250
A2	1.350	1.550
b	0.330	0.510
c	0.170	0.250
D	4.700	5.100
E	3.800	4.000
E1	5.800	6.200
e	1.270(BSC)	
L	0.400	1.270
θ	0°	8°



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