AW2N15S

N-Channel Enhancement Mode MOSFET

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)MAX}$	I_D
150V	300mΩ@10V	2A

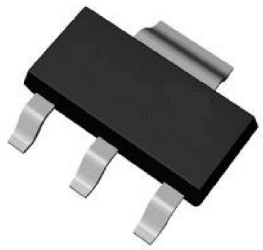
Feature

- High density cell design for ultra low Rdson
- Fully characterized avalanche voltage and current
- Excellent package for good heat dissipation

Application

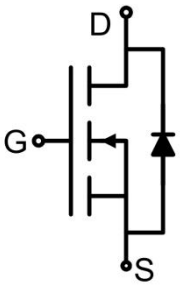
- Power switching application
- Hard switched and high frequency circuits

Package



SOT-223

Circuit diagram



Marking

AW2N15S

N-Channel Enhancement Mode MOSFET

Absolute maximum ratings (Ta=25℃ unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	150	V
Gate-Source Voltage	V_{GS}	±20	V
Continuous Drain Current	I_D	2	A
Pulsed Drain Current[1]	I_{DM}	6	A
Power Dissipation	P_D	2	W
Thermal Resistance from Junction to Ambient[2]	$R_{\theta JA}$	62.5	℃/W
Junction Temperature	T_J	150	℃
Storage Temperature	T_{STG}	-55 ~ +150	℃

Electrical characteristics (T_A=25℃, unless otherwise noted)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-source breakdown voltage	$V_{(BR)DSS}$	V_{GS} = 0V, I_D =250μA	150			V
Zero gate voltage drain current	I_{DSS}	V_{DS} =150V,V_{GS} = 0V			1	μA
Gate-body leakage current	I_{GSS}	V_{GS} =±20V, V_{DS} = 0V			±100	nA
Gate threshold voltage[3]	$V_{GS(th)}$	V_{DS} =V_{GS}, I_D =250μA	1.5	2.0	2.5	V
Drain-source on-resistance[3]	$R_{DS(on)}$	V_{GS} =10V, I_D =1.5A		260	300	mΩ
Forward Transconductance[3]	g_{FS}	V_{DS} =15V, I_D =1.5A		3		S
Dynamic characteristics[4]						
Input Capacitance	C_{iss}	V_{DS} =25V,V_{GS} =0V,f =1MHz		235		pF
Output Capacitance	C_{oss}			36		
Reverse Transfer Capacitance	C_{rss}			20		
Total Gate Charge	Q_g	V_{DS} =75V,V_{GS} =10V,I_D =1.5A		8		nC
Gate-Source Charge	Q_{gs}			1.4		
Gate-Drain Charge	Q_{gd}			2.1		
Turn-on delay time	$t_{d(on)}$	V_{DD}=75V,V_{GS}=10V,I_D=1A R_L=75Ω,R_G=6Ω		8		nS
Turn-on rise time	t_r			10		
Turn-off delay time	$t_{d(off)}$			20		
Turn-off fall time	t_f			15		
Source-Drain Diode characteristics						
Diode Forward Voltage[3]	V_{SD}	V_{GS} =0V, I_S=2A			1.2	V
Diode Forward Current[2]	I_S				2	A

Notes:

1) Repetitive Rating: Pulse width limited by maximum junction temperature
2) Surface Mounted on FR4 Board, t ≤ 10 sec.
3) Pulse Test: Pulse Width ≤ 300μs, Duty Cycle ≤ 2%.
4) Guaranteed by design, not subject to production.

Typical Characteristics

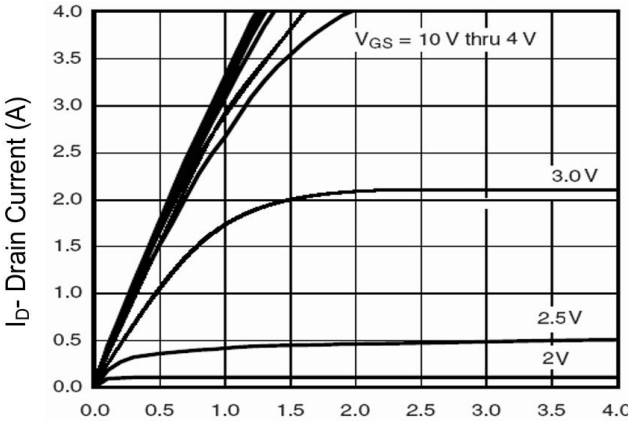


Figure 1 Output Characteristics

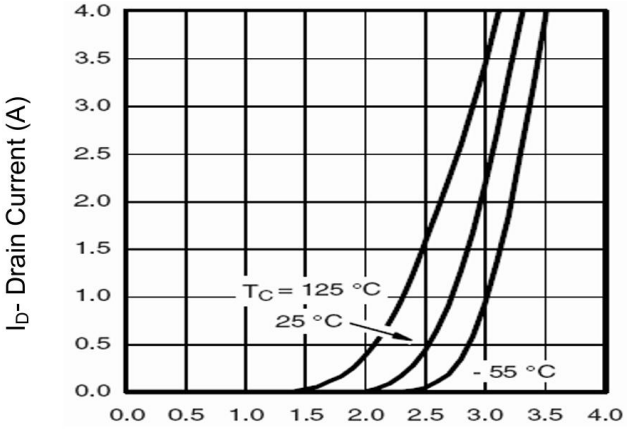


Figure 2 Transfer Characteristics

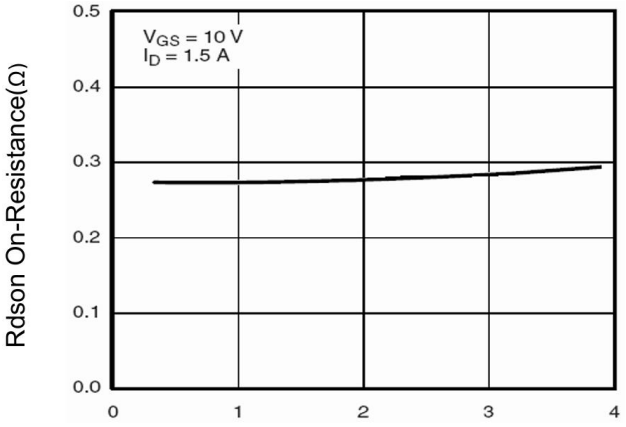


Figure 3 Rdson- Drain Current

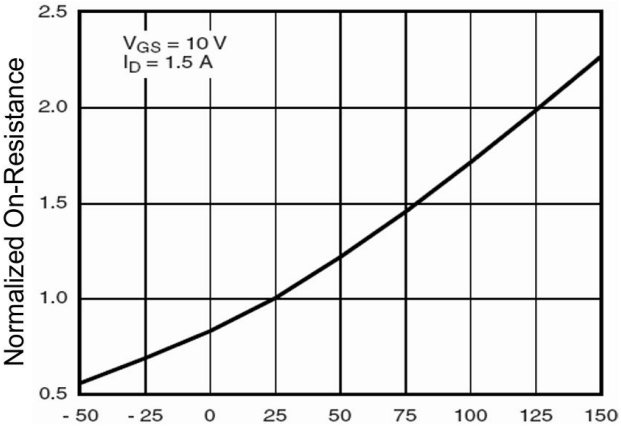


Figure 4 Rdson- Junction Temperature

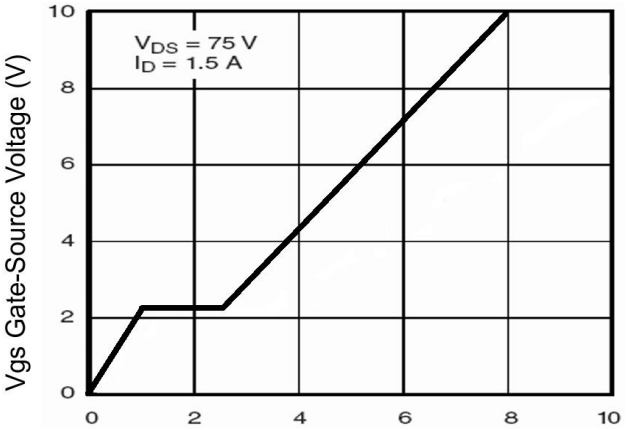


Figure 5 Gate Charge

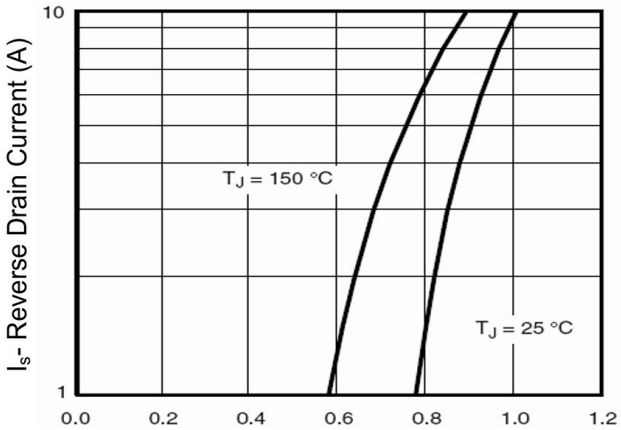


Figure 6 Source- Drain Diode Forward

Typical Characteristics

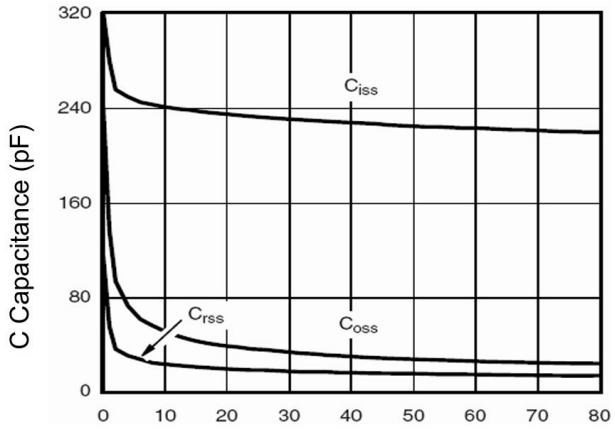


Figure 7 Capacitance vs Vds

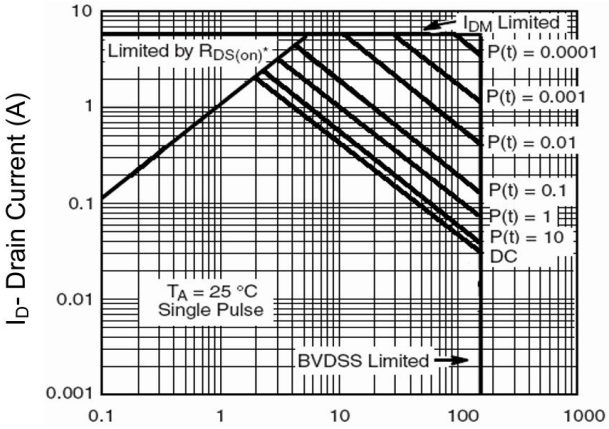


Figure 8 Safe Operation Area

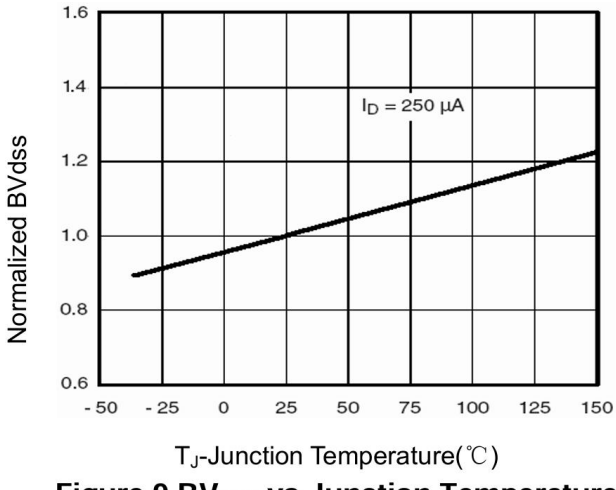


Figure 9 BV_{DSS} vs Junction Temperature

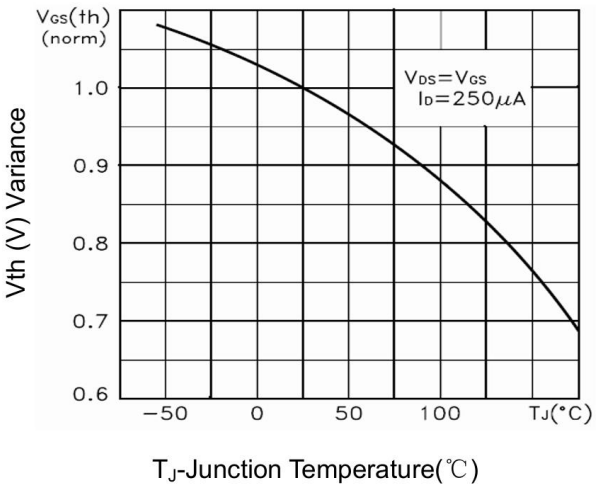


Figure 10 $V_{GS(th)}$ vs Junction Temperature

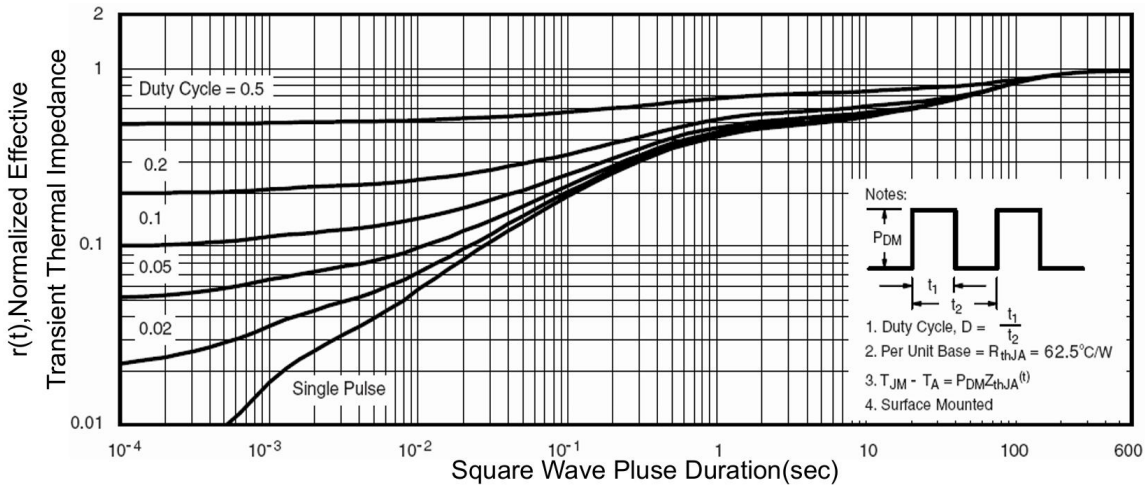
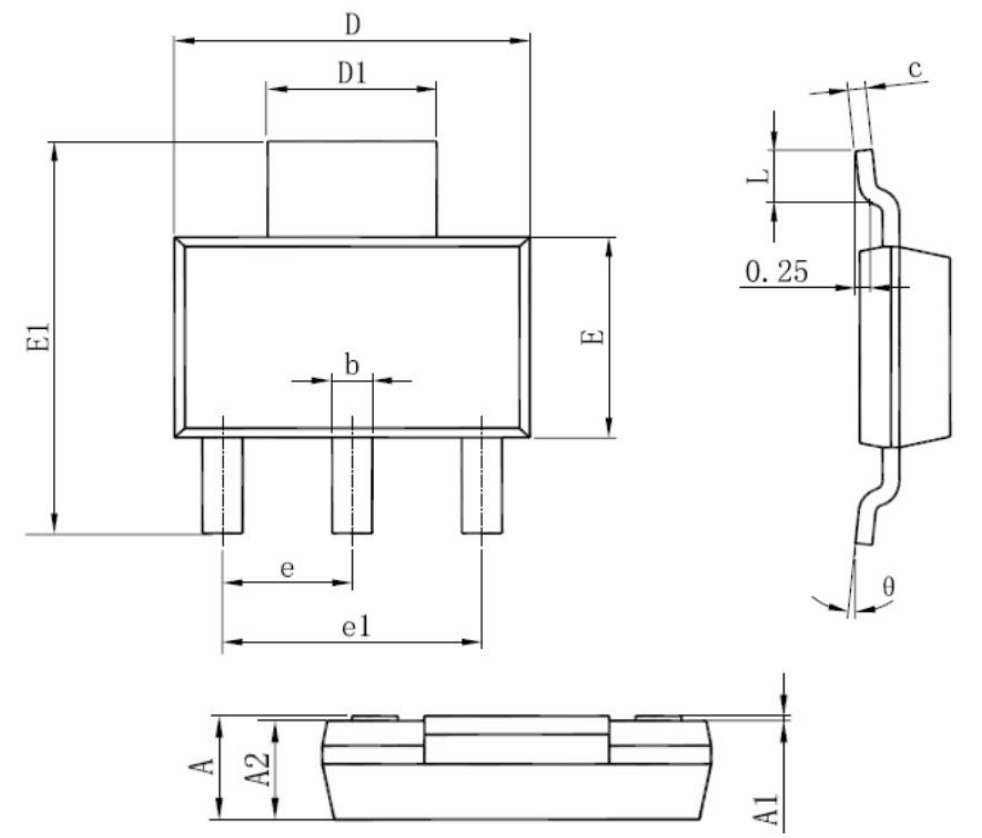


Figure 11 Normalized Maximum Transient Thermal Impedance

SOT-223 Package Information



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	1.520	1.800	0.060	0.071
A1	0.000	0.120	0.000	0.005
A2	1.450	1.750	0.057	0.069
b	0.600	0.820	0.024	0.032
c	0.240	0.350	0.010	0.014
D	6.200	6.500	0.244	0.256
D1	2.900	3.100	0.114	0.122
E	3.300	3.700	0.130	0.146
E1	6.700	7.300	0.264	0.287
e	2.300(BSC)		0.091(BSC)	
e1	4.500	4.700	0.177	0.185
L	0.900	1.150	0.035	0.045
θ	0°	10°	0°	10°