N-Channel Enhancement Mode Field Effect Transistor

Product Summary

V_{DS}	30V
I_D	3.6A
$R_{DS(ON)}$(at V_{GS}=10V)	33mohm
$R_{DS(ON)}$(at V_{GS}=4.5V)	48mohm
▽V_{DS} Tested	

General Description

Trench Power MV MOSFET technology
High Power and current handing capability
Moisture Sensitivity Level 1
Epoxy Meets UL 94 V-0 Flammability Rating
Halogen Free

Applications

PWM application

Absolute Maximum Ratings (T_A=25 unless otherwise noted)

Parameter	Symbol	Limit	Unit

Electrical Characteristics (T_J=25 unless otherwise noted)

Parameter	Symbol	Conditions	Min	Typ	Max	Units
Static Parameter						
Drain-Source Breakdown Voltage	BV_{DSS}	V_{GS}=0V, I_D=250	30			V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=30V,V_{GS}=0V			1	
Gate-Body Leakage Current	I_{GSS1}	V_{GS}= 20V, V_{DS}=0V			100	nA
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}= V_{GS}, I_D=250	1.0	1.5	2.2	V
Static Drain-Source On-Resistance	$R_{DS(ON)}$	V_{GS}=10V, I_D=3.6A		26	33	m
		V_{GS}=4.5V, I_D=3A		39	48	
Diode Forward Voltage	V_{SD}	I_S=3.6A,V_{GS}=0V			1.2	V
Dynamic Parameters						
Input Capacitance	C_{iss}	V_{DS}=10V,V_{GS}=0V,f=1MHZ		314		pF
Output Capacitance	C_{oss}			59		
Reverse Transfer Capacitance	C_{rss}			48		
Switching Parameters						
Total Gate Charge	Q_g	V_{GS}=10V,V_{DS}=15V,I_D=3.6A		6.08		nC
Gate-Source Charge	Q_{gs}			1.26		
Gate-Drain Charge	Q_{gd}			1.32		
Reverse Recovery Chrage	Q_{rr}	I_F=3.6A, di/dt=100A/us		1.66		
Reverse Recovery Time	t_{rr}			17.33		ns
Turn-on Delay Time	$t_{D(on)}$	V_{GS}=10V, V_{DS}=15V, R_L=4.1 R_{GEN}=3		3.8		
Turn-on Rise Time	t_r			23.2		
Turn-off Delay Time	$t_{D(off)}$			7		
Turn-off fall Time	t_f			18.6		

A. Pulse Test: Pulse Width 300us,Duty cycle 2%.

B. R_{JA} is the sum of the junction-to-case and case-to-ambient thermal resistance, where the case thermal reference is defined as the solder mounting surface of the drain pins. R_{JC} is guaranteed by design, while R_{JA} is determined by the board design. The maximum rating presented here is based on mounting on a 1 in 2 pad of 2oz copper.

Typical Performance Characteristics

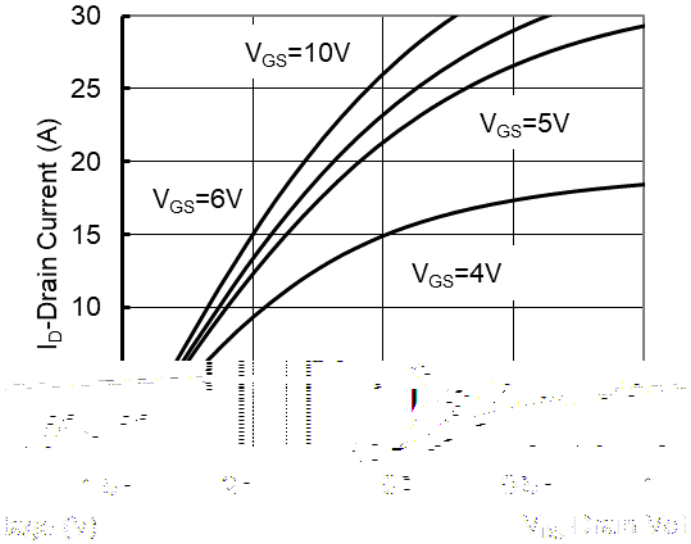


Figure1. Output Characteristics

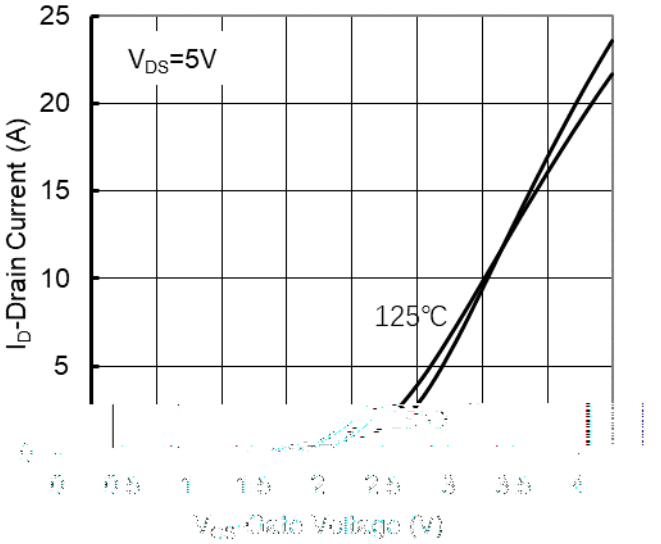


Figure2. Transfer Characteristics

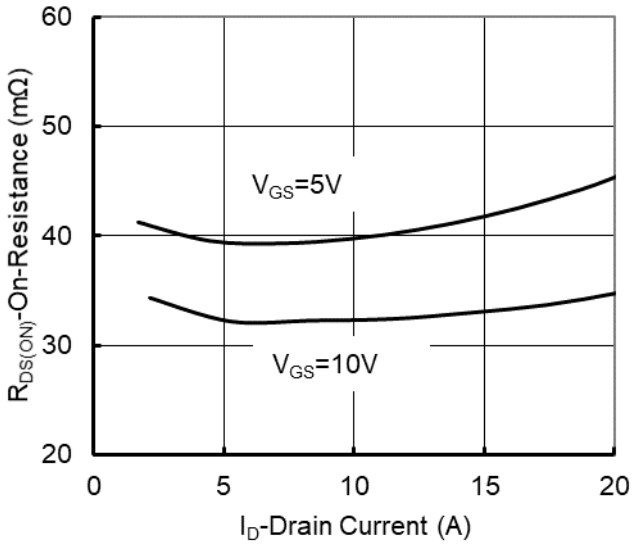


Figure 3: On-Resistance vs. Drain Current and Gate Voltage

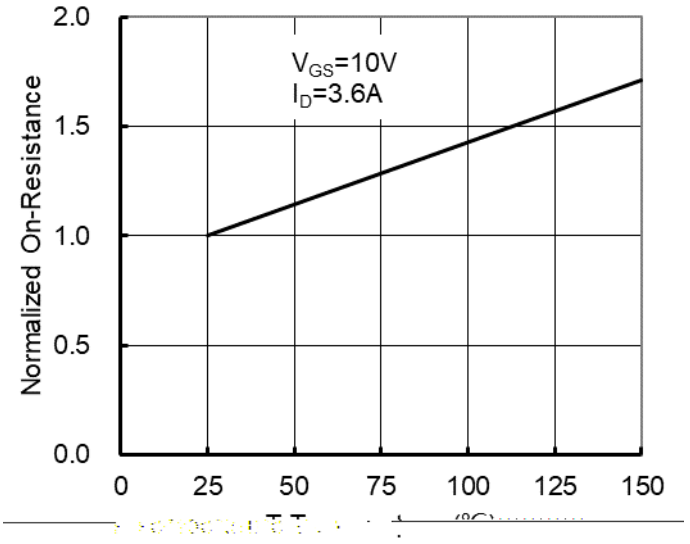


Figure 4: On-Resistance vs. Junction Temperature

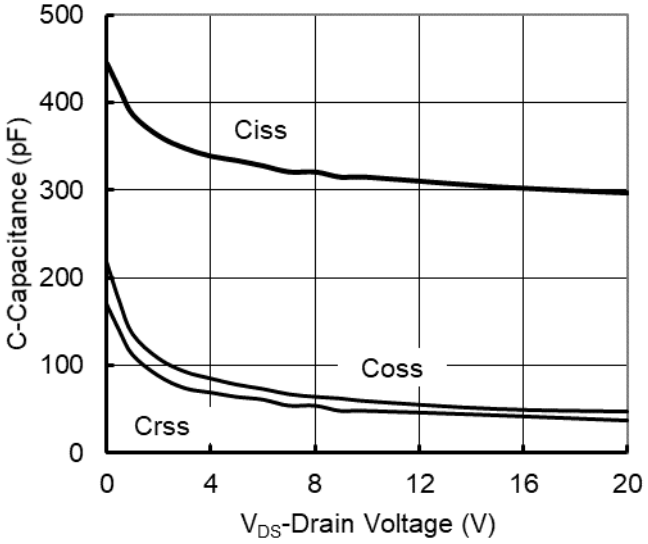


Figure5. Capacitance Characteristics

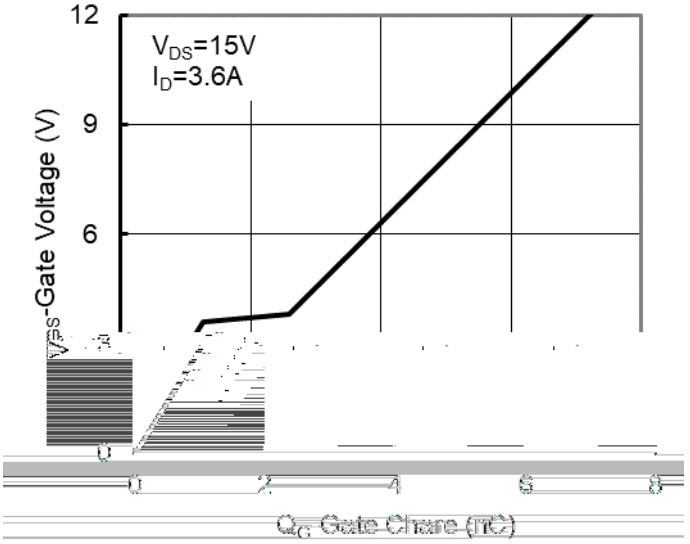


Figure6. Gate Charge

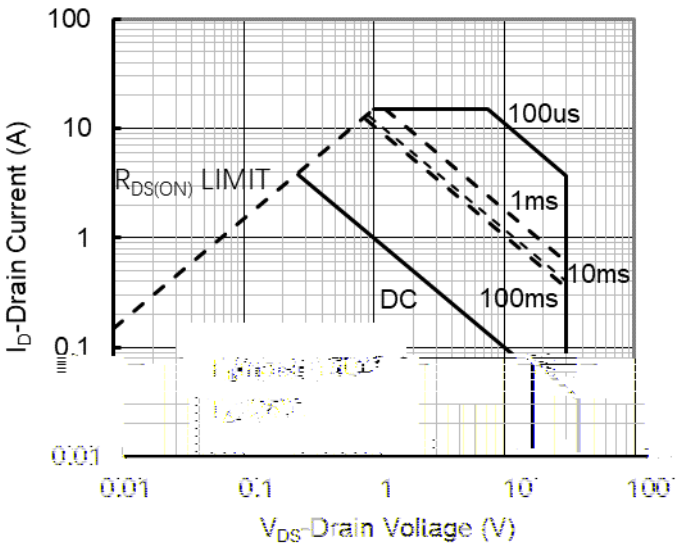


Figure7. Safe Operation Area

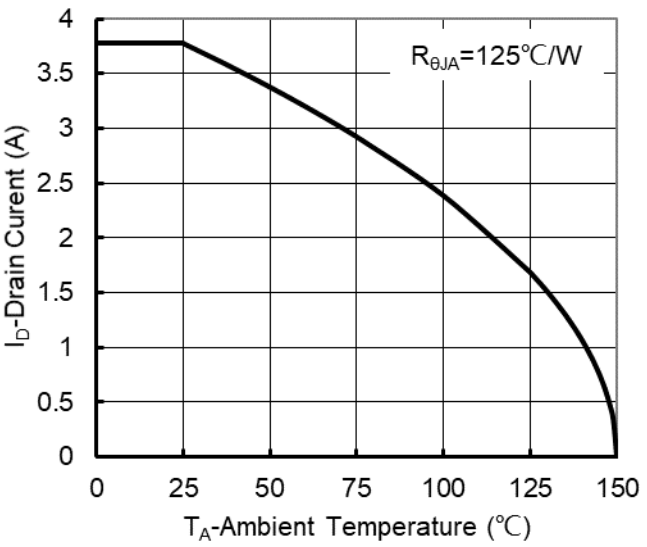


Figure8. Maximum Continuous Drain Current vs Ambient Temperature

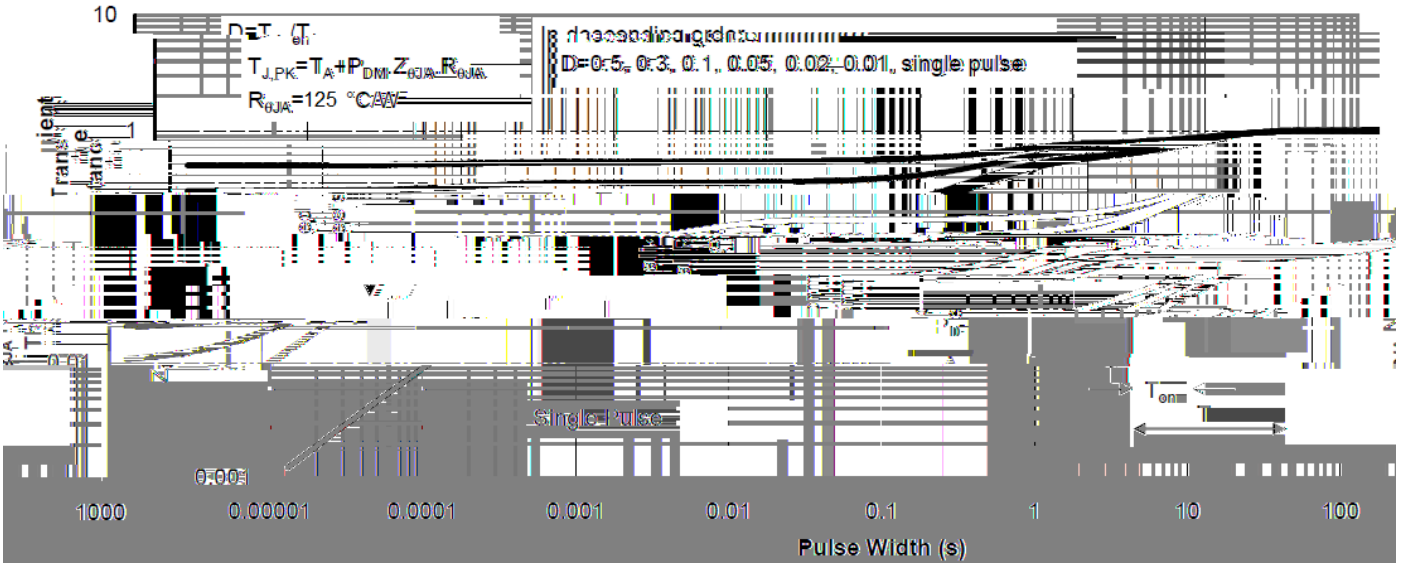
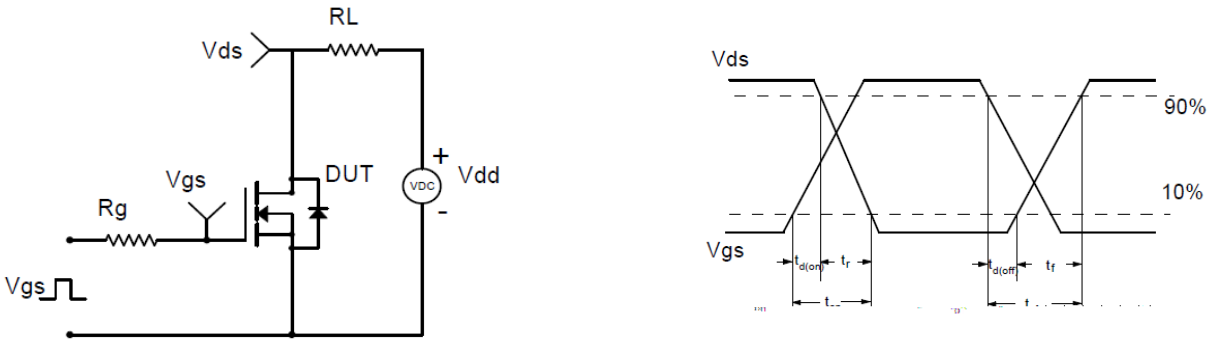
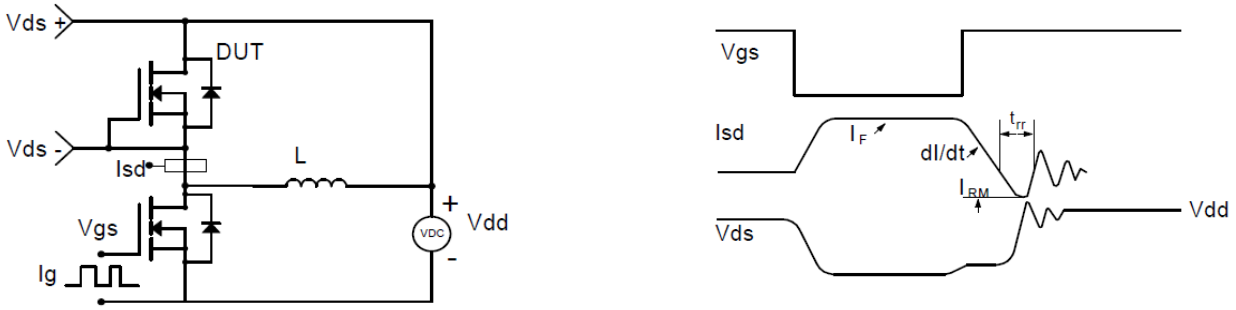


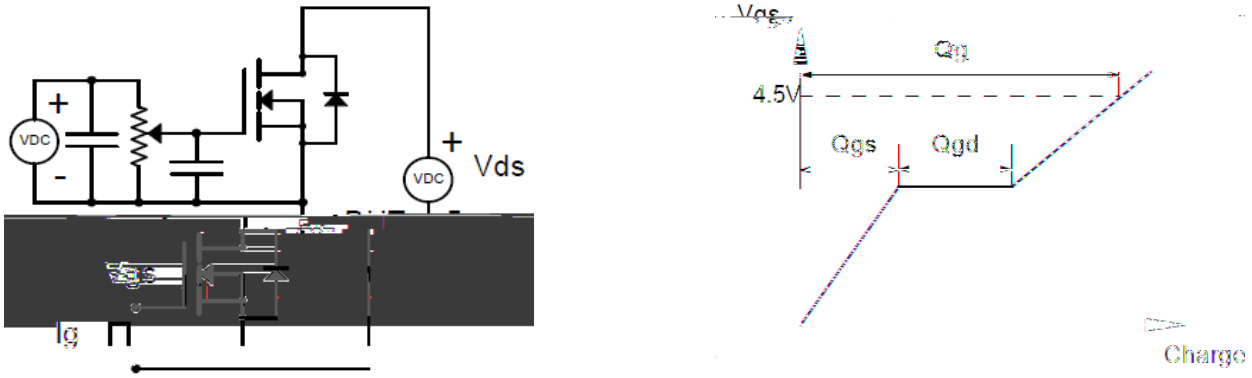
Figure9. Normalized Maximum Transient Thermal Impedance



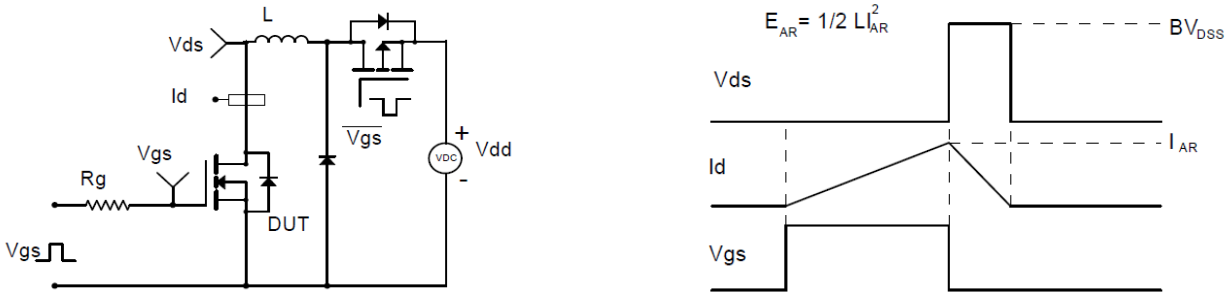
Resistive Switching Test Circuit & Waveforms



Diode Recovery Test Circuit & Waveforms

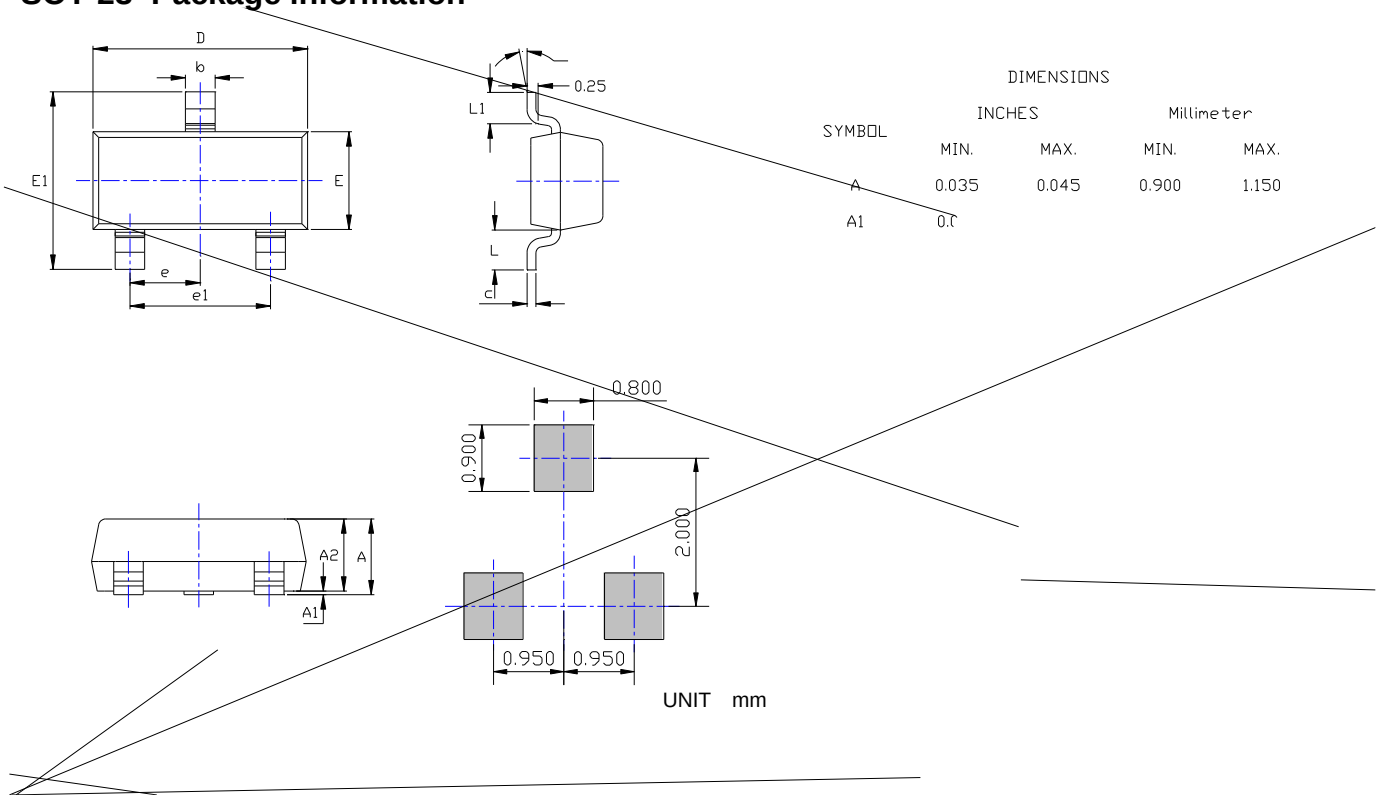


Gate Charge Test Circuit & Waveform



Unclamped Inductive Switching (UIS) Test Circuit & Waveforms

SOT-23 Package information



DIMENSIONS				
SYMBOL	INCHES		Millimeter	
	MIN.	MAX.	MIN.	MAX.
A	0.035	0.045	0.900	1.150
A1	0.0			

Disclaimer

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