



YEA SHIN TECHNOLOGY CO., LTD

YS001N60S

N-Channel Enhancement MOSFET



VDS= 600V, ID= 0.1A

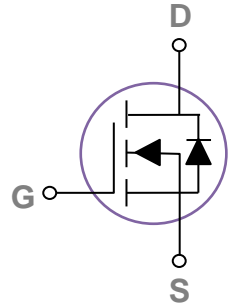
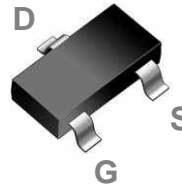
Features

- Improved dv/dt capability
- Fast switching
- Green Device Available

Applications

- High efficient switched mode power supplies
- TV Power
- Adapter/charger
- LED Lighting

SOT-23 Pin Configuration



Absolute Maximum Rating $T_c=25^\circ\text{C}$ unless otherwise noted

Symbol	Parameter	Rating	Units
V _{DS}	Drain-Source Voltage	600	V
V _{GS}	Gate-Source Voltage	±20	V
	Drain Current – Continuous ($T_c=25^\circ\text{C}$)	0.1	A
	Drain Current – Continuous ($T_c=100^\circ\text{C}$)	0.06	A
I _{DM}	Drain Current – Pulsed ¹	0.4	A
P _D	Power Dissipation ($T_c=25^\circ\text{C}$)	1.56	W
	Power Dissipation – Derate above 25°C	0.012	W/°C
T _{STG}	Storage Temperature Range	-55 to 150	°C
T _J	Operating Junction Temperature Range	-55 to 150	°C

Thermal Characteristics

Symbol	Parameter	Typ.	Max.	Unit
R _{θJA}	Thermal Resistance Junction to ambient	---	80	°C /W

DEVICE CHARACTERISTICS

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Electrical Characteristics ($T_J=25\text{ }^\circ\text{C}$, unless otherwise noted)

Off Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
BV_{DSS}	Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D=250\mu A$	600	---	---	V
$\Delta BV_{DSS}/\Delta T_J$	BV_{DSS} Temperature Coefficient	Reference to 25°C , $I_D=1\text{mA}$	---	0.52	---	$V/^\circ\text{C}$
I_{DSS}	Drain-Source Leakage Current	$V_{DS}=600V, V_{GS}=0V, T_J=25^\circ\text{C}$	---	---	1	μA
		$V_{DS}=480V, V_{GS}=0V, T_J=125^\circ\text{C}$	---	---	10	μA
I_{GSS}	Gate-Source Leakage Current	$V_{GS}=\pm 20V, V_{DS}=0V$	---	---	± 100	nA

On Characteristics

$R_{DS(ON)}$	Static Drain-source On-Resistance	$V_{GS}=10V, I_D=0.5A$	---	90	160	Ω
$V_{GS(th)}$	Gate Threshold Voltage	$V_{GS}=V_{DS}, I_D=250\mu A$	1.5	2.3	3	V
$\Delta V_{GS(th)}$	$V_{GS(th)}$ Temperature Coefficient		---	-3.74	---	$\text{mV}/^\circ\text{C}$
gfs	Forward Transconductance	$V_{DS}=10V, I_D=0.07A$	---	0.7	---	S

Dynamic and Switching Characteristics

Q_g	Total Gate Charge ^{2,3}	$V_{DS}=480V, V_{GS}=10V, I_D=0.1A$	---	2.4	5	nC
Q_{gs}	Gate-Source Charge ^{2,3}		---	0.3	1	
Q_{gd}	Gate-Drain Charge ^{2,3}		---	0.2	1	
$T_{d(on)}$	Turn-On Delay Time ^{2,3}	$V_{DD}=300V, V_{GS}=10V, R_G=3.3\Omega, I_D=0.05A$	---	9.2	18	ns
T_r	Rise Time ^{2,3}		---	12.2	24	
$T_{d(off)}$	Turn-Off Delay Time ^{2,3}		---	14.4	28	
T_f	Fall Time ^{2,3}		---	76.8	150	
C_{iss}	Input Capacitance	$V_{DS}=25V, V_{GS}=0V, f=1\text{MHz}$	---	32.8	65	pF
C_{oss}	Output Capacitance		---	9.7	20	
C_{rss}	Reverse Transfer Capacitance		---	2	4	

Drain-Source Diode Characteristics and Maximum Ratings

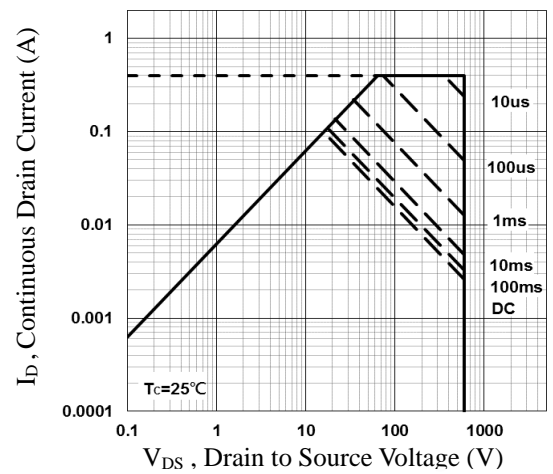
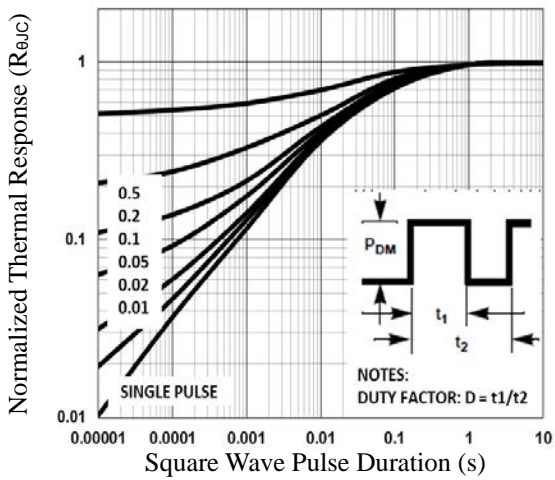
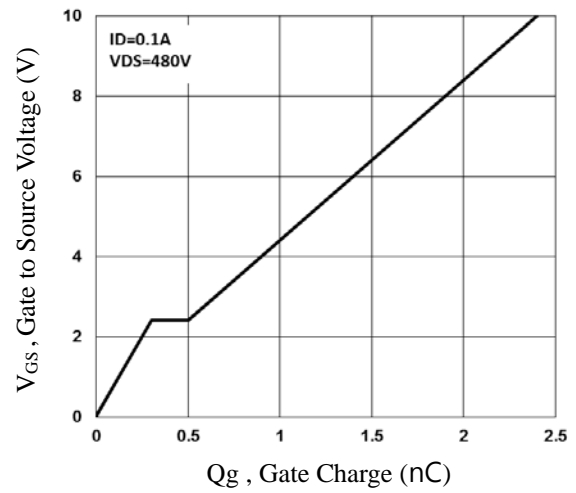
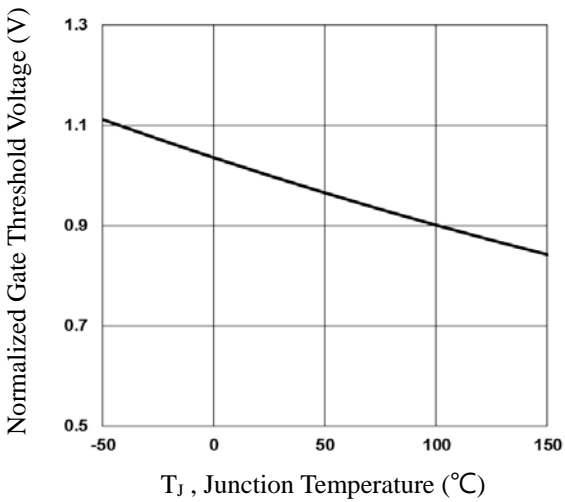
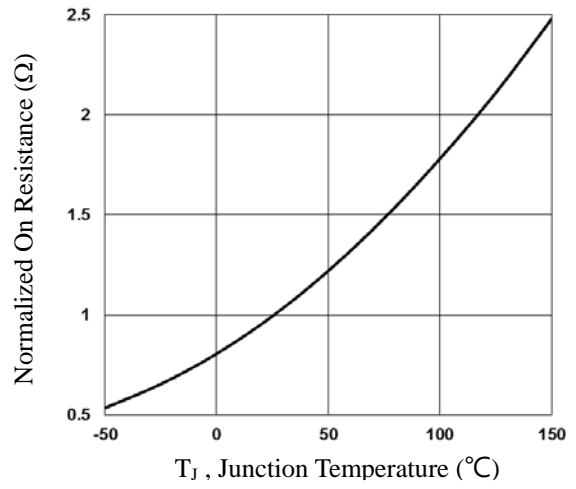
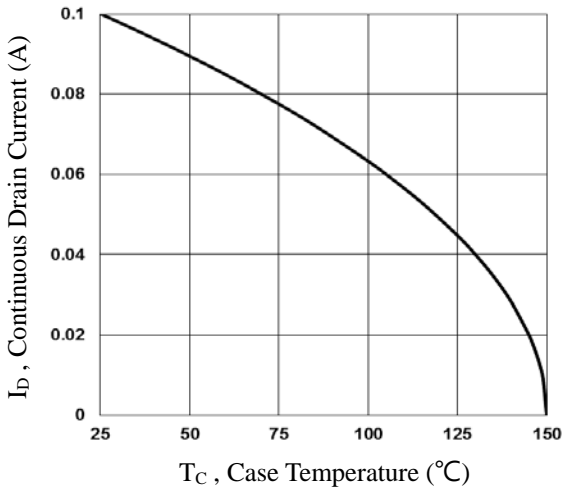
Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I_S	Continuous Source Current	$V_G=V_D=0V, \text{Force Current}$	---	---	0.1	A
I_{SM}	Pulsed Source Current		---	---	0.4	A
V_{SD}	Diode Forward Voltage	$V_{GS}=0V, I_S=0.1A, T_J=25^\circ\text{C}$	---	---	1	V

Note :

1. Repetitive Rating : Pulsed width limited by maximum junction temperature.
2. The data tested by pulsed , pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$.
3. Essentially independent of operating temperature.

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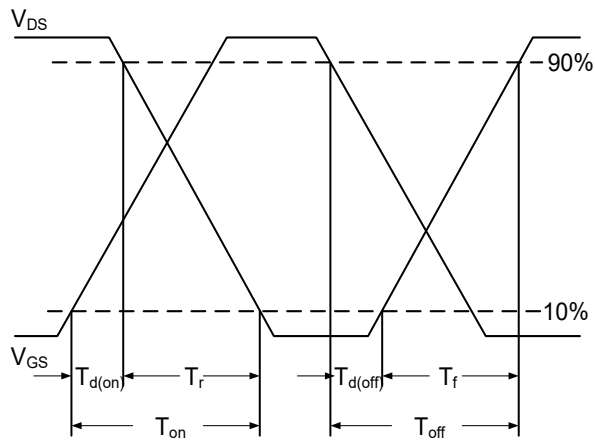


Fig.7 Switching Time Waveform

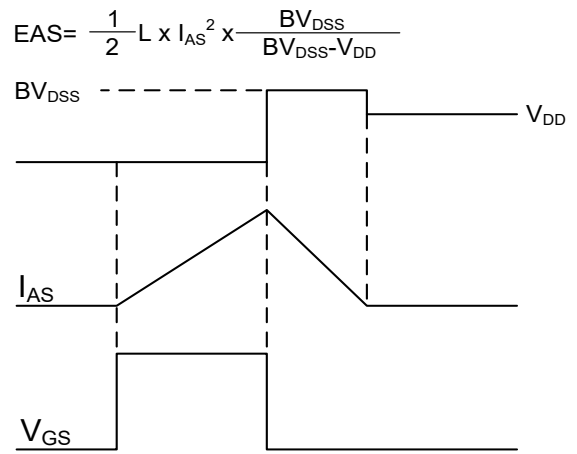
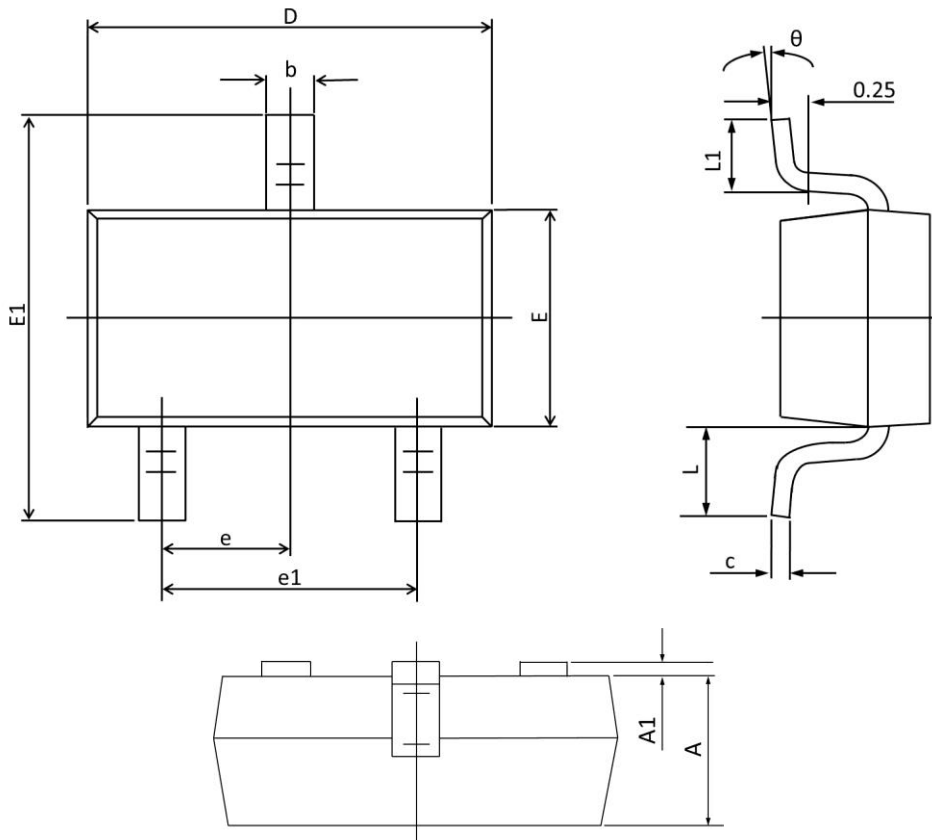


Fig.8 EAS Waveform

PACKAGE OUTLINE & DIMENSIONS

YS001N60S



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.900	1.000	0.035	0.039
A1	0.000	0.100	0.000	0.004
b	0.300	0.500	0.012	0.020
c	0.090	0.110	0.003	0.004
D	2.800	3.000	0.110	0.118
E	1.200	1.400	0.047	0.055
E1	2.250	2.550	0.089	0.100
e	0.950 TYP.		0.037 TYP.	
e1	1.800	2.000	0.071	0.079
L	0.550 REF.		0.022 REF.	
L1	0.300	0.500	0.012	0.020
θ	1°	7°	1°	7°