



YEA SHIN TECHNOLOGY CO., LTD

YSE2P7002S

P-Channel Enhancement MOSFET



VDS= -60V, ID= -0.3A

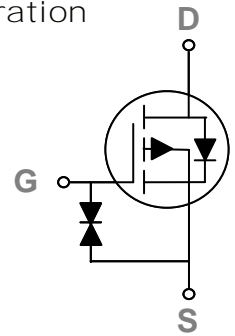
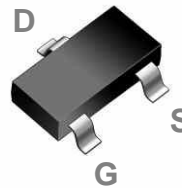
Features

- -60V,-0.3A, $R_{DS(ON)} = 4\Omega @ V_{GS} = -10V$
- Improved dv/dt capability
- Fast switching
- Green Device Available
- G-S ESD Protection Diode Embedded

Applications

- Power Management in Notebook Computer
- Portable Equipment and Battery Powered Systems.

SOT-23 Pin Configuration



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

Symbol	Parameter	Rating	Units
V _{DS}	Drain-Source Voltage	-60	V
V _{GS}	Gate-Source Voltage	±20	V
I _D	Drain Current – Continuous (T _A =25°C)	-0.3	A
	Drain Current – Continuous (T _A =70°C)	-0.24	A
I _{DM}	Drain Current – Pulsed ¹	-1.2	A
P _D	Power Dissipation (T _A =25°C)	1	W
	Power Dissipation – Derate above 25°C	0.008	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	---	125	°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	$V_{GS}=0V, I_D=-250\mu A$	-60	---	---	V
$\Delta BV_{DSS}/\Delta T_J$	BV_{DSS} Temperature Coefficient	Reference to 25°C , $I_D=-1\text{mA}$	---	-0.03	---	$V/^\circ\text{C}$
I_{DSS}	Drain-Source Leakage Current	$V_{DS}=-60V, V_{GS}=0V, T_J=25^\circ\text{C}$	---	---	-1	μA
		$V_{DS}=-48V, V_{GS}=0V, T_J=125^\circ\text{C}$	---	---	-30	μA
I_{GSS}	Gate-Source Leakage Current	$V_{GS}=\pm 20V, V_{DS}=0V$	---	---	± 10	μA

On Characteristics

$R_{DS(ON)}$	Static Drain-source On-Resistance	$V_{GS}=-10V, I_D=-0.3A$	---	2.3	4	Ω
		$V_{GS}=-4.5V, I_D=-0.2A$	---	2.9	5	Ω
$V_{GS(th)}$	Gate Threshold Voltage	$V_{GS}=V_{DS}, I_D=-250\mu A$	-1	-1.5	-2	V
$\Delta V_{GS(th)}$	$V_{GS(th)}$ Temperature Coefficient		---	-2.1	---	$\text{mV}/^\circ\text{C}$

Dynamic and Switching Characteristics

C_{iss}	Input Capacitance	$V_{DS}=-25V, V_{GS}=0V, f=1\text{MHz}$	---	41	---	pF
C_{oss}	Output Capacitance		---	13	---	
C_{rss}	Reverse Transfer Capacitance		---	8	---	

Drain-Source Diode Characteristics and Maximum Ratings

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I_S	Continuous Source Current	$V_G=V_D=0V$, Force Current	---	---	-0.3	A
I_{SM}	Pulsed Source Current		---	---	-0.6	A
V_{SD}	Diode Forward Voltage	$V_{GS}=0V, I_S=-1A, T_J=25^\circ\text{C}$	---	---	-1.3	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.

DEVICE CHARACTERISTICS

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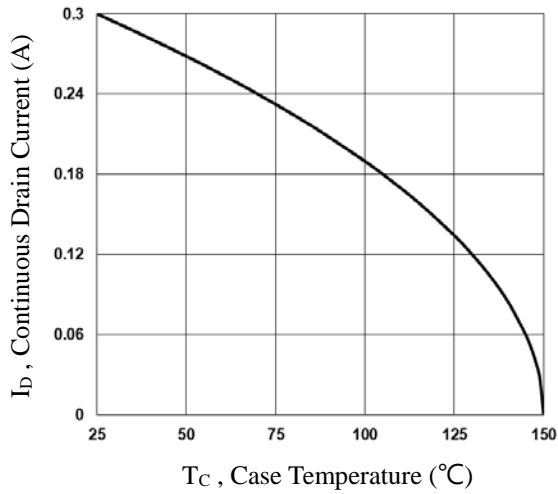


Fig.1 Continuous Drain Current vs. T_C

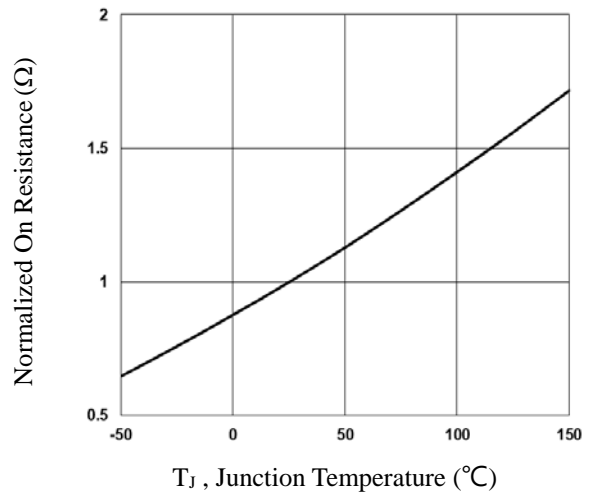


Fig.2 Normalized $R_{DS(on)}$ vs. T_J

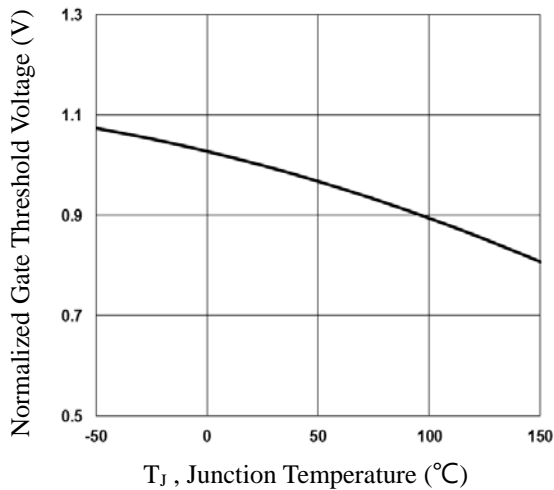


Fig.3 Normalized V_{th} vs. T_J

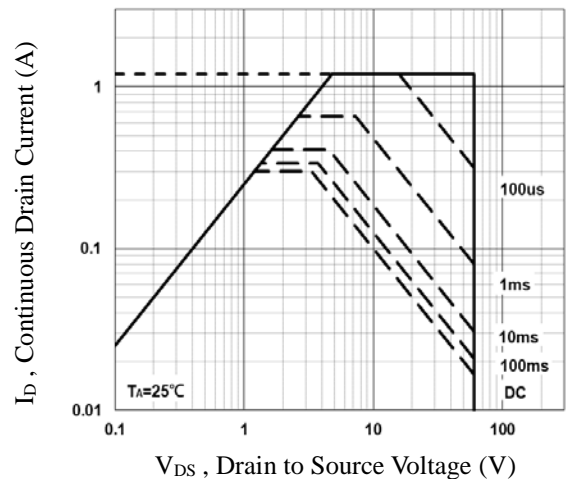


Fig.4 Maximum Safe Operation Area

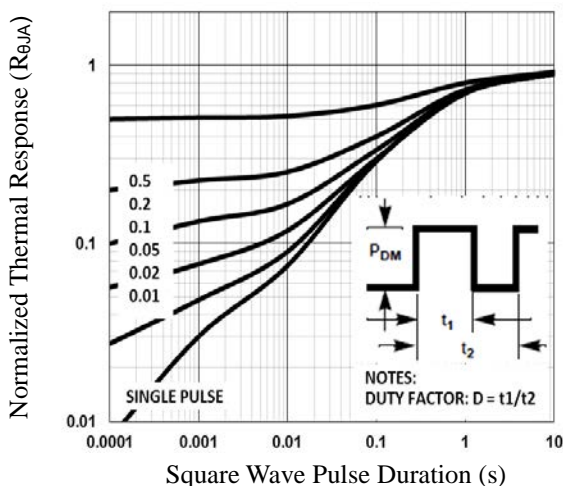


Fig.5 Normalized Transient Impedance

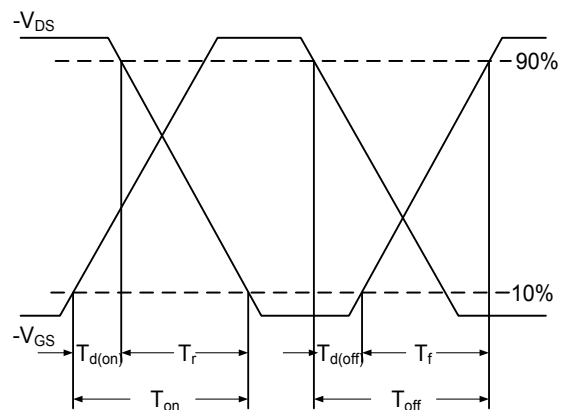
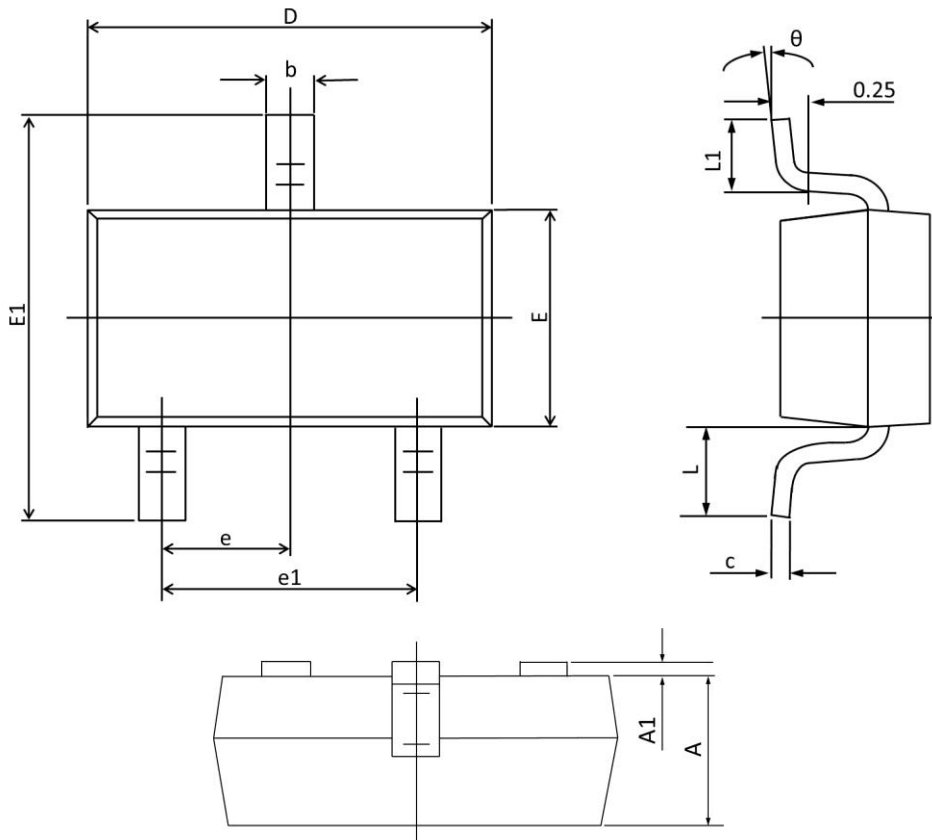


Fig.6 Switching Time Waveform

PACKAGE OUTLINE & DIMENSIONS

YSE2P7002S



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°