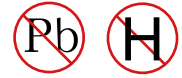




YEA SHIN TECHNOLOGY CO., LTD

YSE2319YUB

P-Channel Enhancement MOSFET



VDS= -20V, ID= -400mA

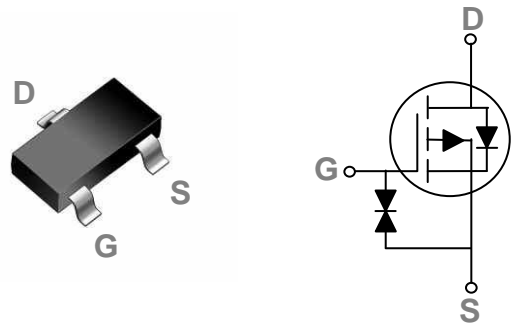
Features

- -20V,-400mA, RDS(ON) =600mΩ@VGS = -4.5V
- Improved dv/dt capability
- Fast switching
- Green Device Available
- Suit for -1.5V Gate Drive Applications

Applications

- Notebook
- Load Switch
- Battery Protection
- Hand-held Instruments

SOT-523 Pin Configuration



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

Symbol	Parameter	Rating	Units
V _{DS}	Drain-Source Voltage	-20	V
V _{GS}	Gate-Source Voltage	±8	V
I _D	Drain Current – Continuous ($T_c=25^\circ\text{C}$)	-400	mA
	Drain Current – Continuous ($T_c=100^\circ\text{C}$)	-250	mA
I _{DM}	Drain Current – Pulsed ¹	-1.6	A
P _D	Power Dissipation ($T_c=25^\circ\text{C}$)	312	mW
	Power Dissipation – Derate above 25°C	2.5	mW/°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	---	400	°C/W

DEVICE CHARACTERISTICS

YSE2319YUB

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	$V_{GS}=0V, I_D=-250\mu A$	-20	---	---	V
$\Delta BV_{DSS}/\Delta T_J$	BV_{DSS} Temperature Coefficient	Reference to 25°C , $I_D=-1mA$	---	-0.01	---	$V/^\circ\text{C}$
I_{DSS}	Drain-Source Leakage Current	$V_{DS}=-20V, V_{GS}=0V, T_J=25^\circ\text{C}$	---	---	-1	μA
		$V_{DS}=-16V, V_{GS}=0V, T_J=125^\circ\text{C}$	---	---	-10	μA
I_{GSS}	Gate-Source Leakage Current	$V_{GS}=\pm 8V, V_{DS}=0V$	---	---	± 20	μA

On Characteristics

$R_{DS(ON)}$	Static Drain-source On-Resistance	$V_{GS}=-4.5V, I_D=-0.3A$	---	440	600	$m\Omega$
		$V_{GS}=-2.5V, I_D=-0.2A$	---	610	850	$m\Omega$
		$V_{GS}=-1.8V, I_D=-0.1A$	---	810	1200	$m\Omega$
		$V_{GS}=-1.5V, I_D=-0.1A$	---	1020	1600	$m\Omega$
		$V_{GS}=-1.2V, I_D=-0.1A$	---	1800	3000	$m\Omega$
$V_{GS(th)}$	Gate Threshold Voltage	$V_{GS}=V_{DS}, I_D=-250\mu A$	-0.3	-0.6	-1	V
$\Delta V_{GS(th)}$	$V_{GS(th)}$ Temperature Coefficient		---	3	---	$mV/^\circ\text{C}$

Dynamic and Switching Characteristics

Q_g	Total Gate Charge ^{2,3}	$V_{DS}=-10V, V_{GS}=-4.5V, I_D=-0.2A$	---	1	2	nC
Q_{gs}	Gate-Source Charge ^{2,3}		---	0.28	0.5	
Q_{gd}	Gate-Drain Charge ^{2,3}		---	0.18	0.4	
$T_{d(on)}$	Turn-On Delay Time ^{2,3}	$V_{DD}=-10V, V_{GS}=-4.5V, R_G=10\Omega, I_D=-0.2A$	---	8	16	ns
T_r	Rise Time ^{2,3}		---	5.2	10	
$T_{d(off)}$	Turn-Off Delay Time ^{2,3}		---	30	60	
T_f	Fall Time ^{2,3}		---	18	36	
C_{iss}	Input Capacitance	$V_{DS}=-10V, V_{GS}=0V, f=1MHz$	---	40	78	pF
C_{oss}	Output Capacitance		---	15	30	
C_{rss}	Reverse Transfer Capacitance		---	6.5	13	

Drain-Source Diode Characteristics and Maximum Ratings

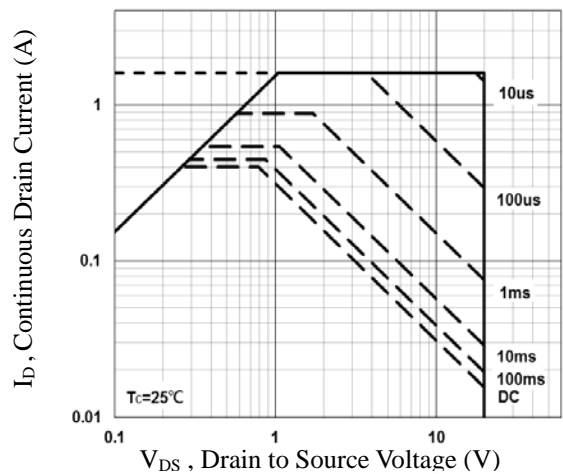
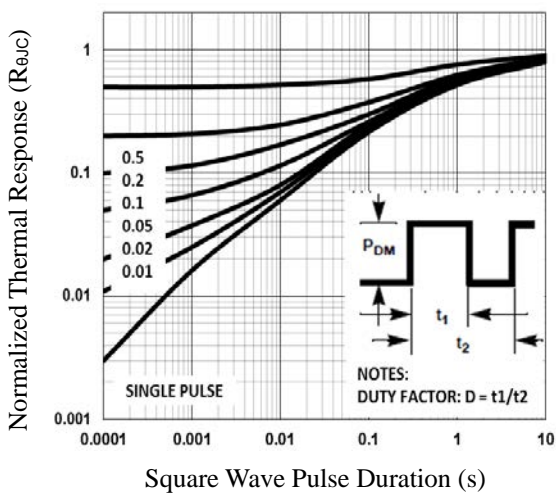
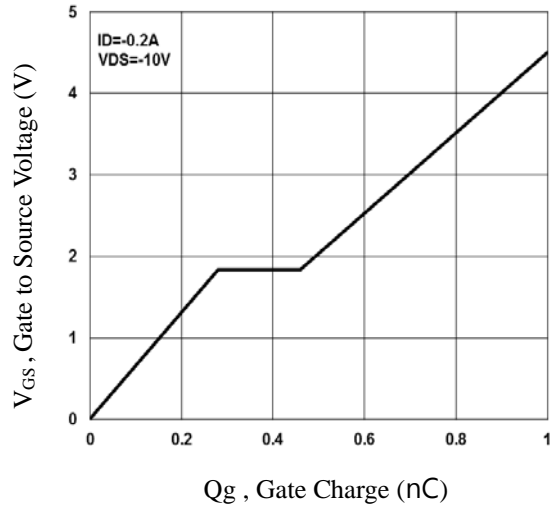
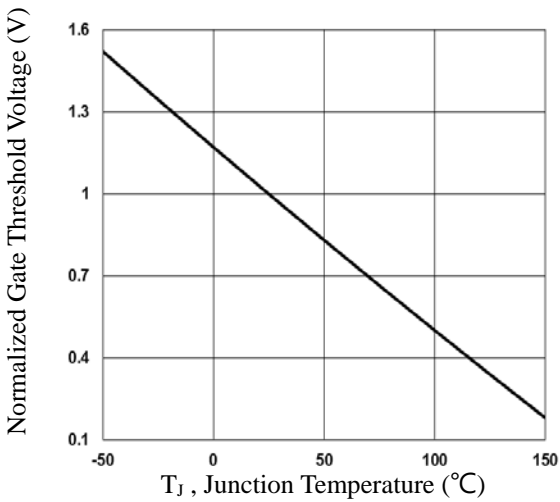
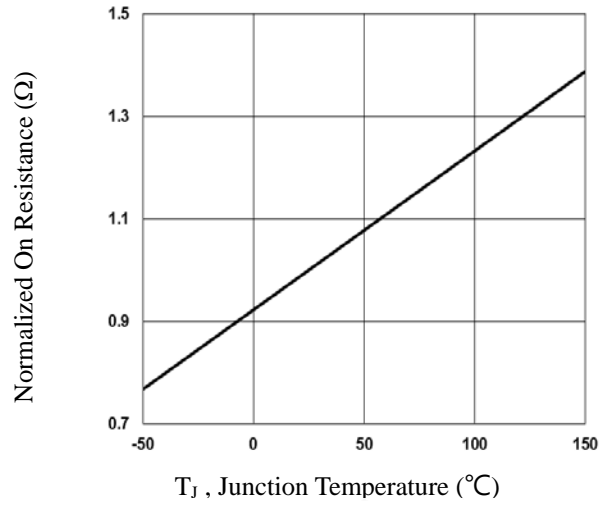
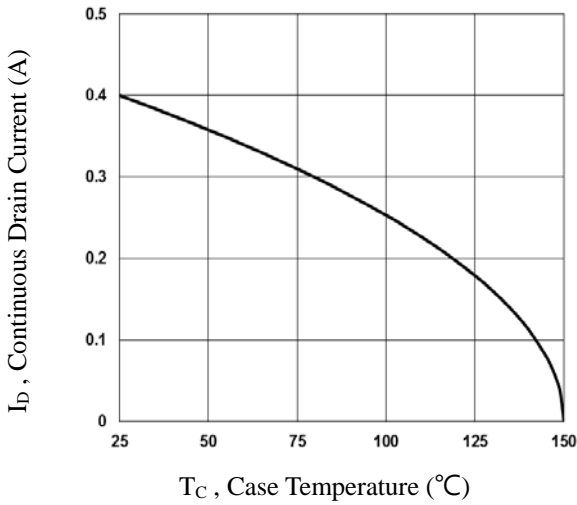
Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I_S	Continuous Source Current	$V_G=V_D=0V$, Force Current	---	---	-0.4	A
I_{SM}	Pulsed Source Current		---	---	-0.8	A
V_{SD}	Diode Forward Voltage	$V_{GS}=0V, I_S=-0.2A, T_J=25^\circ\text{C}$	---	---	-1	V

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.

DEVICE CHARACTERISTICS

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DEVICE CHARACTERISTICS

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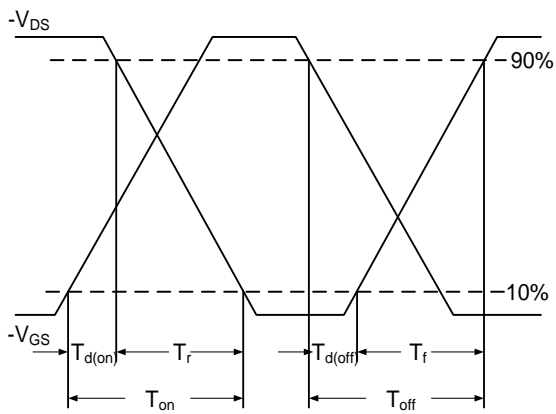


Fig.7 Switching Time Waveform

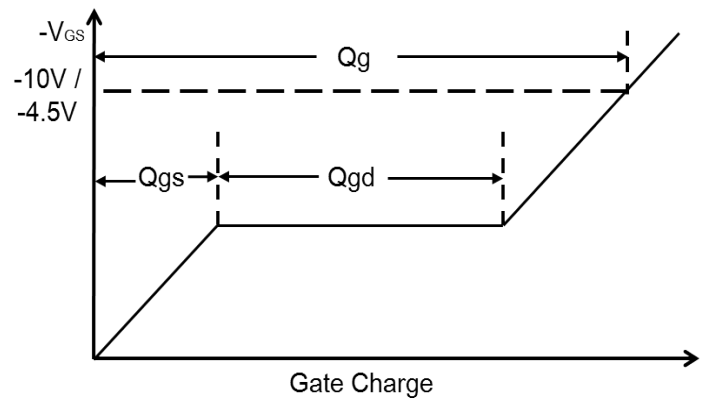
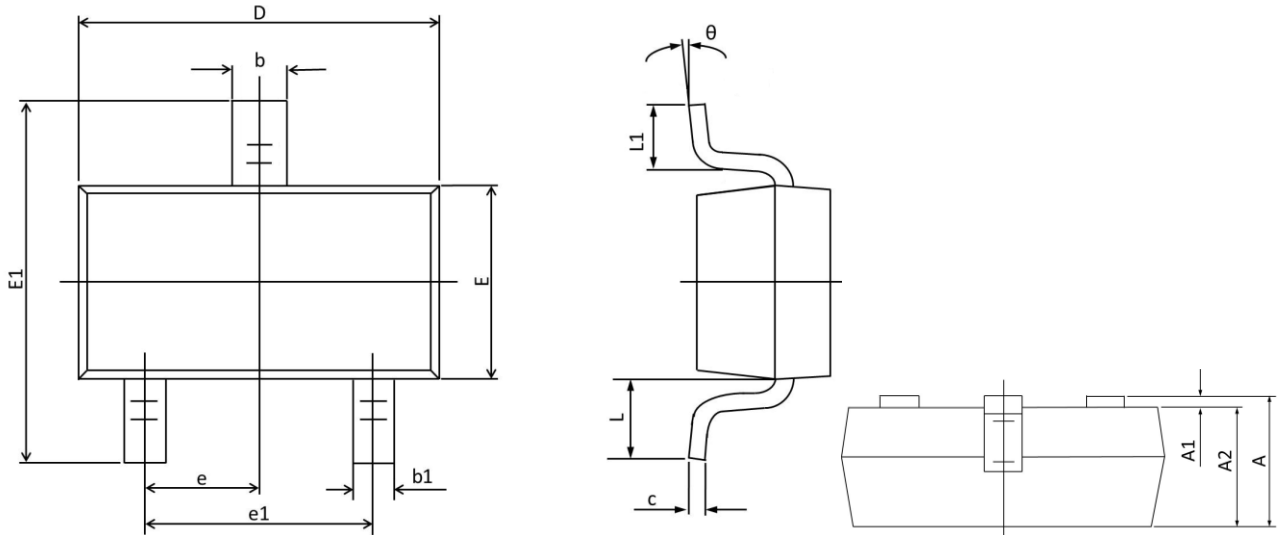


Fig.8 Gate Charge Waveform

PACKAGE OUTLINE & DIMENSIONS

YSE2319YUB

SOT-523 PACKAGE INFORMATION



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	MAX	MIN	MAX	MIN
A	0.900	0.700	0.035	0.028
A1	0.100	0.000	0.004	0.000
A2	0.800	0.700	0.031	0.028
b	0.350	0.250	0.014	0.010
b1	0.250	0.150	0.010	0.006
c	0.200	0.100	0.008	0.004
D	1.750	1.500	0.069	0.059
E	0.900	0.700	0.035	0.028
E1	1.750	1.400	0.069	0.055
e	0.5TYP.		0.02TYP.	
e1	1.100	0.900	0.043	0.035
L	0.460	0.300	0.018	0.012
L1	0.460	0.260	0.018	0.010
θ	8°	0°	8°	0°