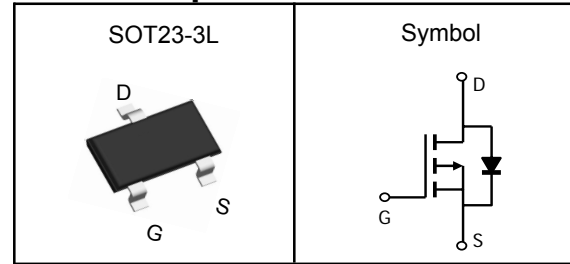


P-Channel Enhancement Mode MOSFET

Features

- Low R_{ds(on)} for low conduction loss
- Reliable and Rugged
- ROHS Compliant & Halogen-Free

Pin Description



Applications

- Power Management in Desktop Computer
- DC/DC Converters

V _{bss}	-30	V
R _{ds(ON)-Typ}	26	mΩ
I _D	-4.8	A

Absolute Maximum Ratings (T_J=25°C, Unless Otherwise Noted)

Symbol	Parameter	P-Channel	Unit
V _{bss}	Drain-Source Voltage	-30	V
V _{GSS}	Gate-Source Voltage	±12	V
T _J	Maximum Junction Temperature	-55 to 150	°C
T _{STG}	Storage Temperature Range	-55 to 150	°C
I _{DM} ^①	Pulse Drain Current Tested	-19.2	A
I _D	Continuous Drain Current	-4.8	A
P _D	Maximum Power Dissipation	1	W

Thermal Characteristics

Symbol	Parameter	Rating	Unit
R _{θJA} ^③	Thermal Resistance-Junction to Ambient	125	°C/W

Note ① : Max. current is limited by bonding wire.

Note ② : UIS tested and pulse width are limited by maximum junction temperature 150°C.

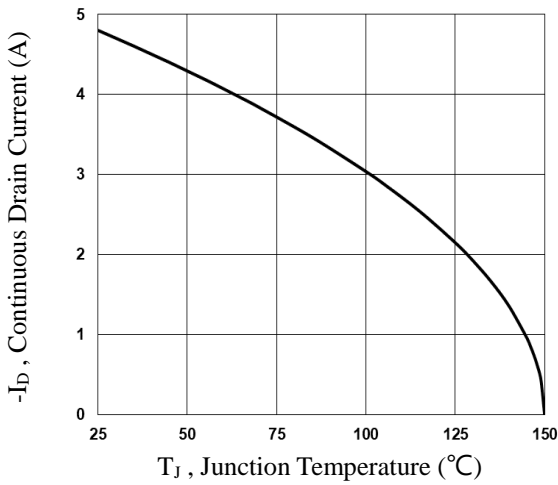
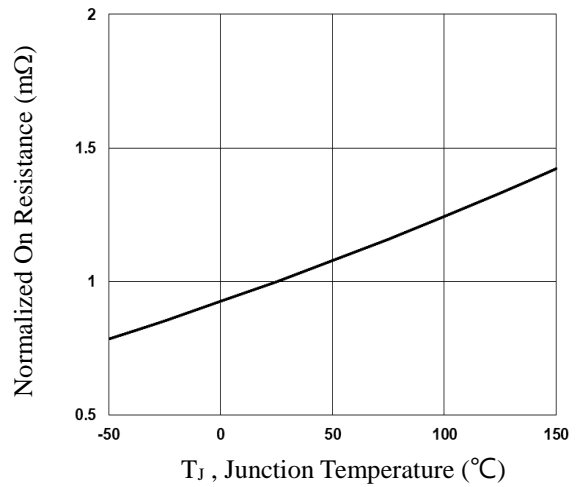
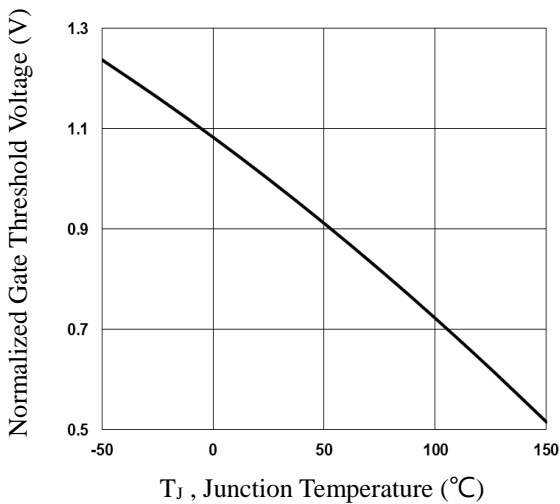
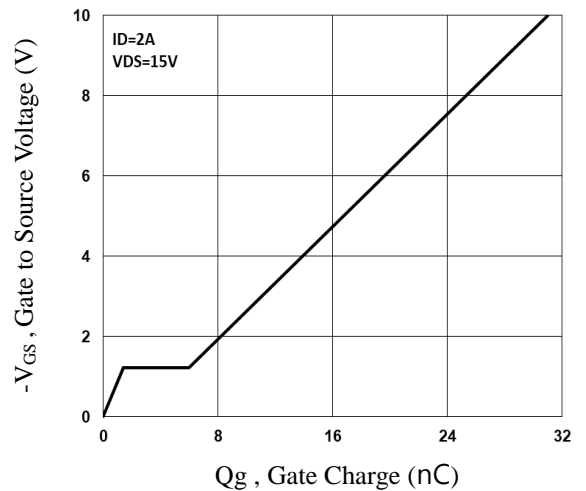
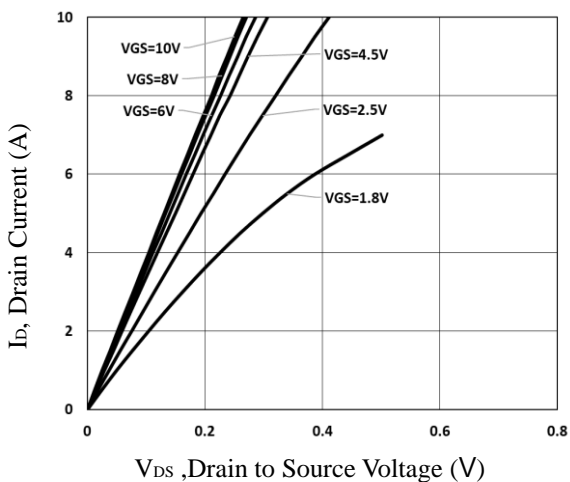
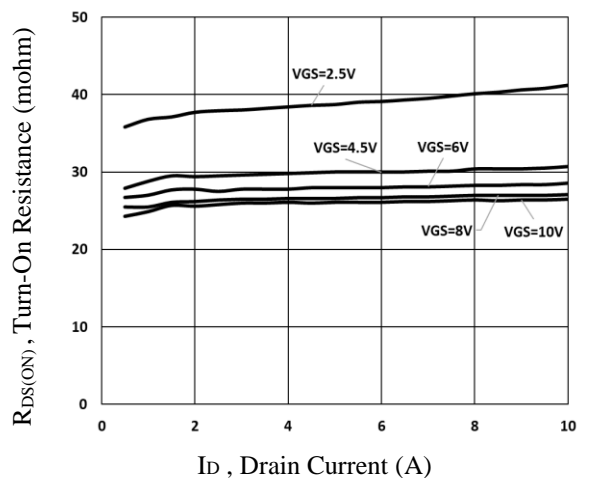
Note ③ : Surface Mounted on 1in² FR-4 board with 1oz.

**P-Channel Enhancement Mode MOSFET****Electrical Characteristics** ($T_J=25^{\circ}\text{C}$, Unless Otherwise Noted)

Symbol	Parameter	Test Conditions	Min	Typ	Max	Unit
Static Electrical Characteristics						
BV_{DSS}	Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D=-250\mu A$	-30	---	---	V
I_{DSS}	Zero Gate Voltage Drain Current	$V_{DS}=-30V, V_{GS}=0V$	---	---	-1	μA
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS}=V_{GS}, I_D=-250\mu A$	-0.5	---	-1.0	V
I_{GSS}	Gate Leakage Current	$V_{GS}=\pm 12V, V_{DS}=0V$	---	---	± 100	nA
$R_{DS(ON)}$	Drain-Source On-state Resistance	$V_{GS}=-10V, I_D=-2A$	---	26	32	m Ω
		$V_{GS}=-4.5V, I_D=-1A$	---	37	48	
gfs	Forward Transconductance	$V_{DS}=-5V, I_D=-1A$	---	5.5	---	S
Dynamic Characteristics ^⑤						
C_{iss}	Input Capacitance	$V_{GS}=0V,$ $V_{DS}=-15V,$ Freq.=1MHz	---	1540	---	pF
C_{oss}	Output Capacitance		---	142	---	
C_{rss}	Reverse Transfer Capacitance		---	118	---	
$T_{d(on)}$	Turn-on Delay Time	$V_{DD}=-15V, V_{GS}=-10V,$ $R_G=6\Omega, I_D=-1A$	---	7.9	---	nS
T_r	Turn-on Rise Time		---	13.2	---	
$T_{d(off)}$	Turn-off Delay Time		---	38.6	---	
T_f	Turn-off Fall Time		---	12.5	---	
Q_g	Total Gate Charge	$V_{DS}=-15V, V_{GS}=-10V,$ $I_D=-2A$	---	31	---	nC
Q_{gs}	Gate-Source Charge		---	1.4	---	
Q_{gd}	Gate-Drain Charge		---	4.6	---	
Source-Drain Characteristics						
V_{SD} ^④	Diode Forward Voltage	$I_S=-1A, V_{GS}=0V$	---	---	-1.0	V

Note ④: Pulse test (pulse width 300us, duty cycle 2%).

Note ⑤: Guaranteed by design, not subject to production testing.

P-Channel Enhancement Mode MOSFET
Typical Characteristics

Fig.1 Continuous Drain Current vs. T_J

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

Fig.3 Normalized V_{th} vs. T_J

Fig.4 Gate Charge Waveform

Fig.5 Typical Output Characteristics

Fig.6 Turn-On Resistance vs. I_D

P-Channel Enhancement Mode MOSFET

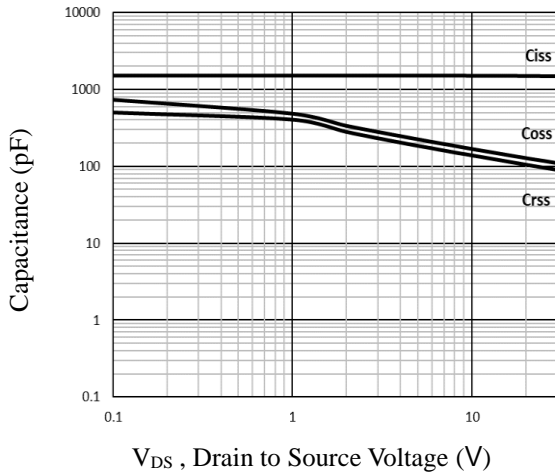


Fig.7 Capacitance Characteristics

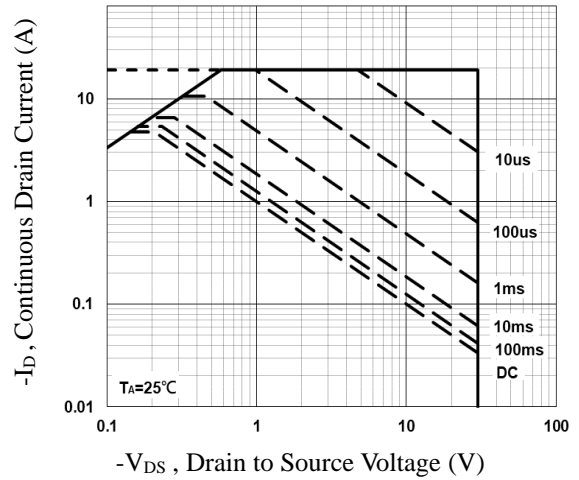


Fig.8 Maximum Safe Operation Area

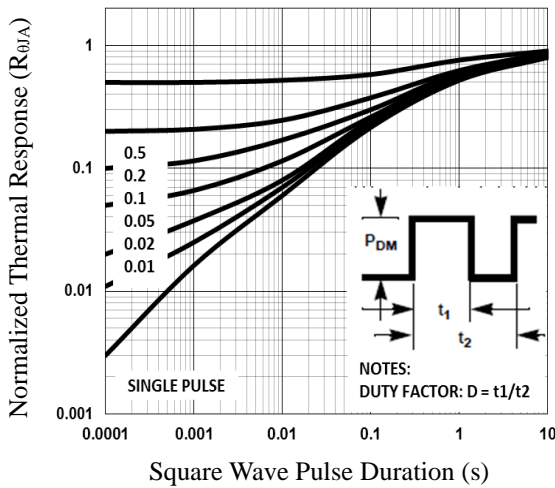


Fig.9 Normalized Transient Impedance

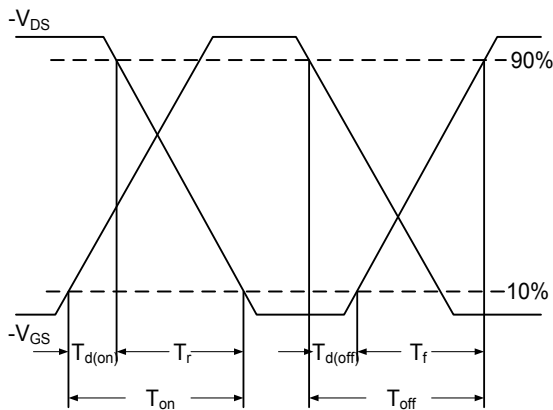


Fig.10 Switching Time Waveform

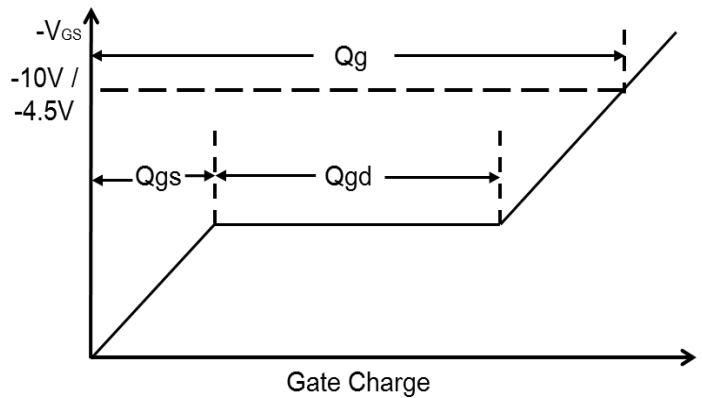
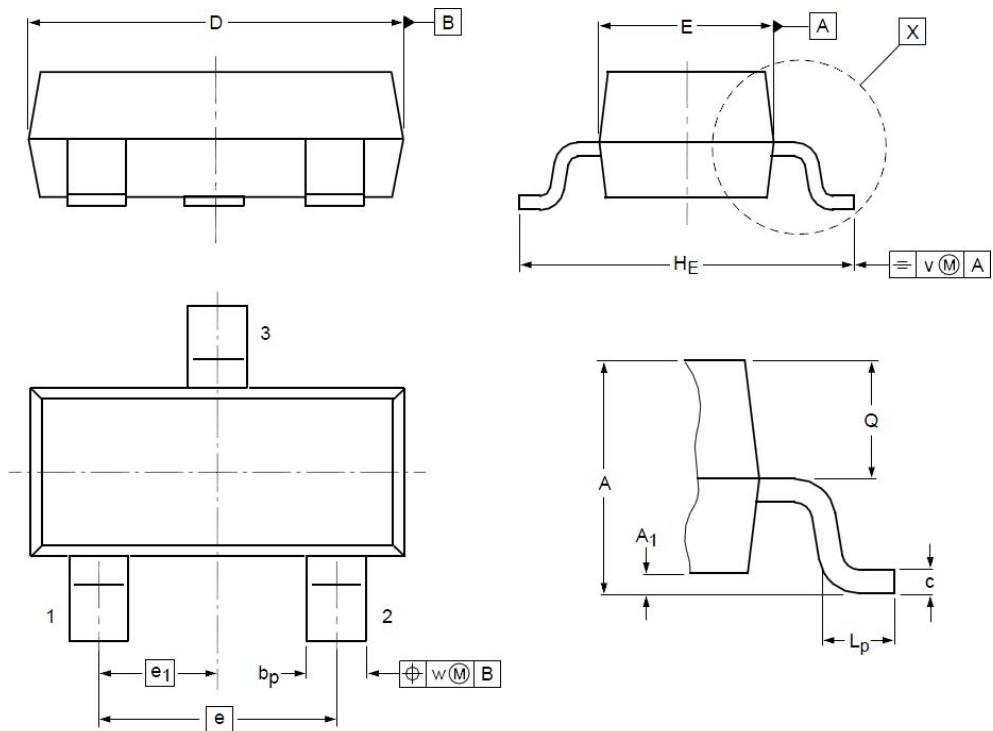


Fig.11 Gate Charge Waveform

P-Channel Enhancement Mode MOSFET
SOT23-3L Package Outline Dimensions


Symbol	Dimensions (unit:mm)			Symbol	Dimensions (unit:mm)		
	Min	Typ	Max		Min	Typ	Max
A	0.90	1.07	1.25	e₁	--	0.95	--
A₁	0.01	0.05	0.10	H_E	2.50	2.80	3.00
b_p	0.30	0.40	0.50	L_p	0.30	0.45	0.60
c	0.10	0.15	0.20	Q	0.23	0.28	0.33
D	2.70	2.90	3.10	V	--	0.20	--
E	1.40	1.55	1.75	W	--	0.20	--
e	--	1.90	--				