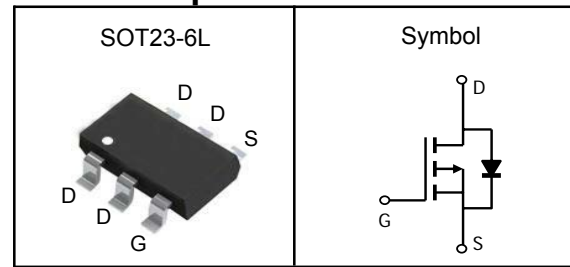


P-Channel Enhancement Mode MOSFET
Features

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

Applications

- Power Management in Desktop Computer
- DC/DC Converters

Pin Description


V _{bss}	-60	V
R _{ds(ON)-Typ}	80	mΩ
I _d	-3.3	A

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

Symbol	Parameter	P-Channel	Unit
V _{bss}	Drain-Source Voltage	-60	V
V _{GSS}	Gate-Source Voltage	±20	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	-13.2	A
I _d	Continuous Drain Current	-3.3	A
P _D	Maximum Power Dissipation	2.0	W

Thermal Characteristics

Symbol	Parameter	Rating	Unit
R _{θJA} ^③	Thermal Resistance-Junction to Ambient	62.5	°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.



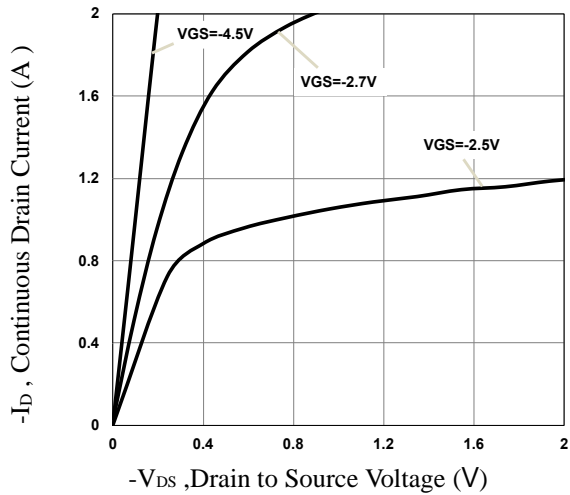
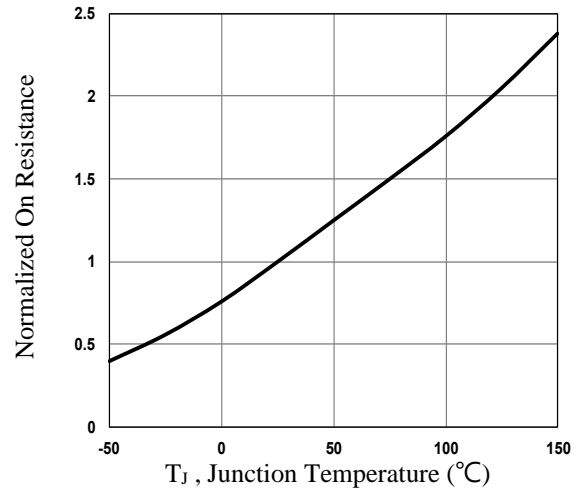
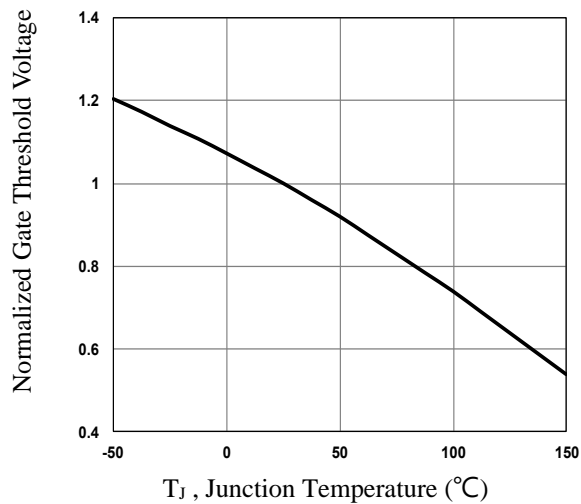
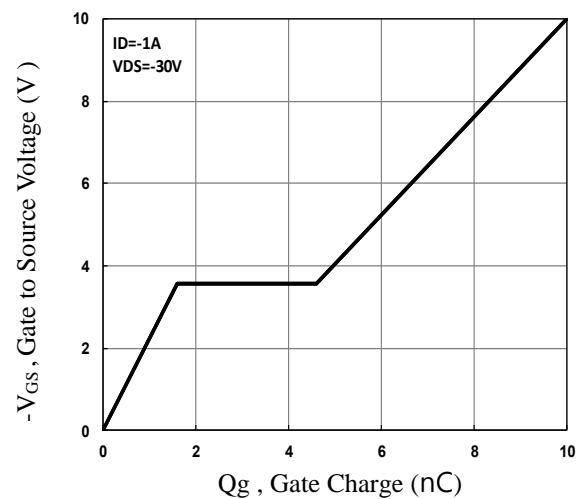
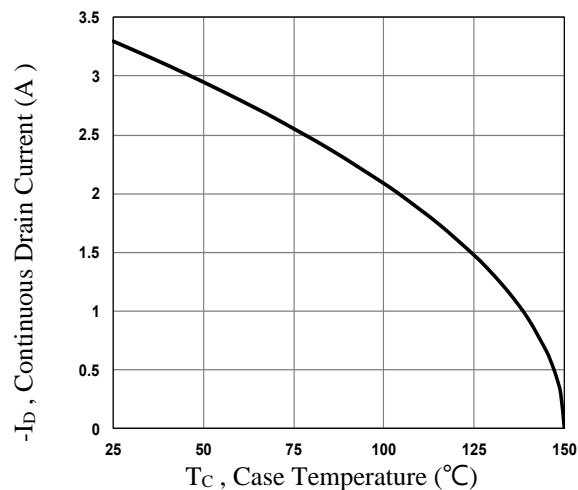
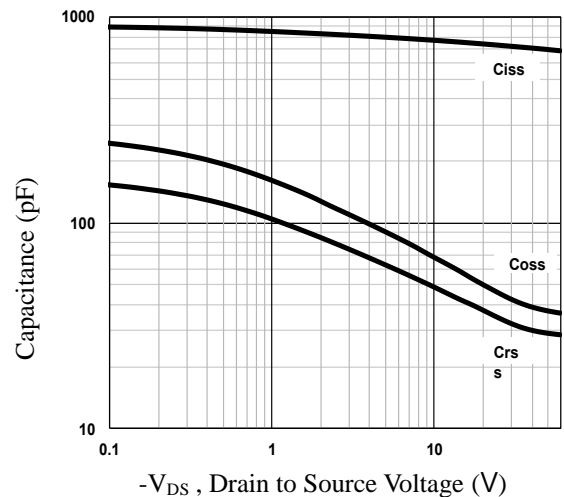
P-Channel Enhancement Mode MOSFET

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	$V_{GS}=0V, I_D=-250\mu A$	-60	---	---	V
I_{DSS}	Zero Gate Voltage Drain Current	$V_{DS}=-60V, V_{GS}=0V$	---	---	-1	μA
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS}=V_{GS}, I_D=-250\mu A$	-1.0	---	-2.5	V
I_{GSS}	Gate Leakage Current	$V_{GS}=\pm 20V, V_{DS}=0V$	---	---	± 100	nA
$R_{DS(on)}$	Drain-Source On-state Resistance	$V_{GS}=-10V, I_D=-2A$	---	80	96	m Ω
		$V_{GS}=-4.5V, I_D=-1A$	---	100	130	
R_G	Gate Resistance	$V_{GS}=0V, V_{DS}=0V, F=1MHz$	---	22	---	Ω
Dynamic Characteristics ^⑤						
C_{iss}	Input Capacitance	$V_{GS}=0V, V_{DS}=-30V, Freq.=1MHz$	---	720	---	pF
C_{oss}	Output Capacitance		---	42	---	
C_{rss}	Reverse Transfer Capacitance		---	32	---	
$T_{d(on)}$	Turn-on Delay Time	$V_{DD}=-30V, V_{GS}=-10V, R_G=6\Omega, I_D=-1A$	---	8	---	nS
T_r	Turn-on Rise Time		---	15	---	
$T_{d(off)}$	Turn-off Delay Time		---	42	---	
T_f	Turn-off Fall Time		---	8	---	
Q_g	Total Gate Charge	$V_{GS}=-30V, V_{DS}=-10V, I_D=-1A$	---	10	---	nC
Q_{gs}	Gate-Source Charge		---	1.6	---	
Q_{gd}	Gate-Drain Charge		---	3.0	---	
Source-Drain Characteristics						
V_{SD} ^④	Diode Forward Voltage	$V_{GS}=0V, I_S=-1A, T_J=25^{\circ}\text{C}$	---	---	-1.0	V
t_{rr}	Reverse Recovery Time	$I_F=-1A, di/dt=100A/\mu s, T_J=25^{\circ}\text{C}$	---	30	---	nS
Q_{rr}	Reverse Recovery Charge		---	15	---	nC

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 Typical Output Characteristics

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

Fig.3 Normalized V_{th} vs. T_J

Fig.4 Gate Charge Waveform

Fig.5 Continuous Drain Current vs. T_c

Fig.6 Capacitance Characteristics

P-Channel Enhancement Mode MOSFET

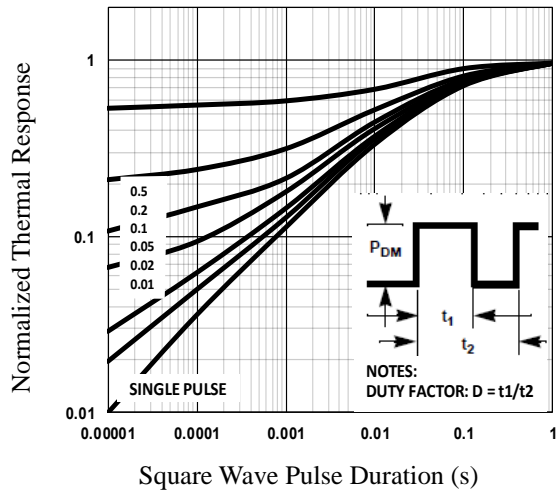


Fig.7 Normalized Transient Impedance

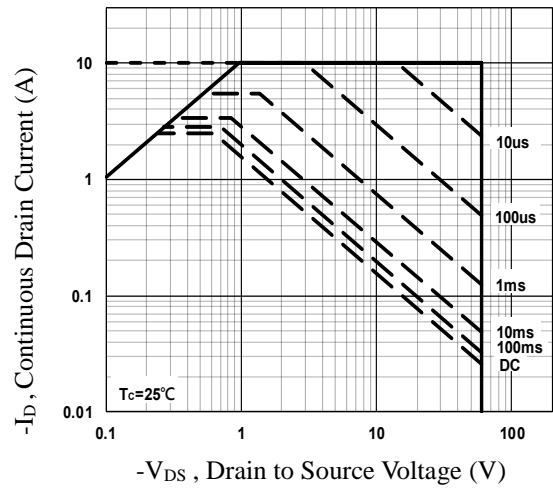
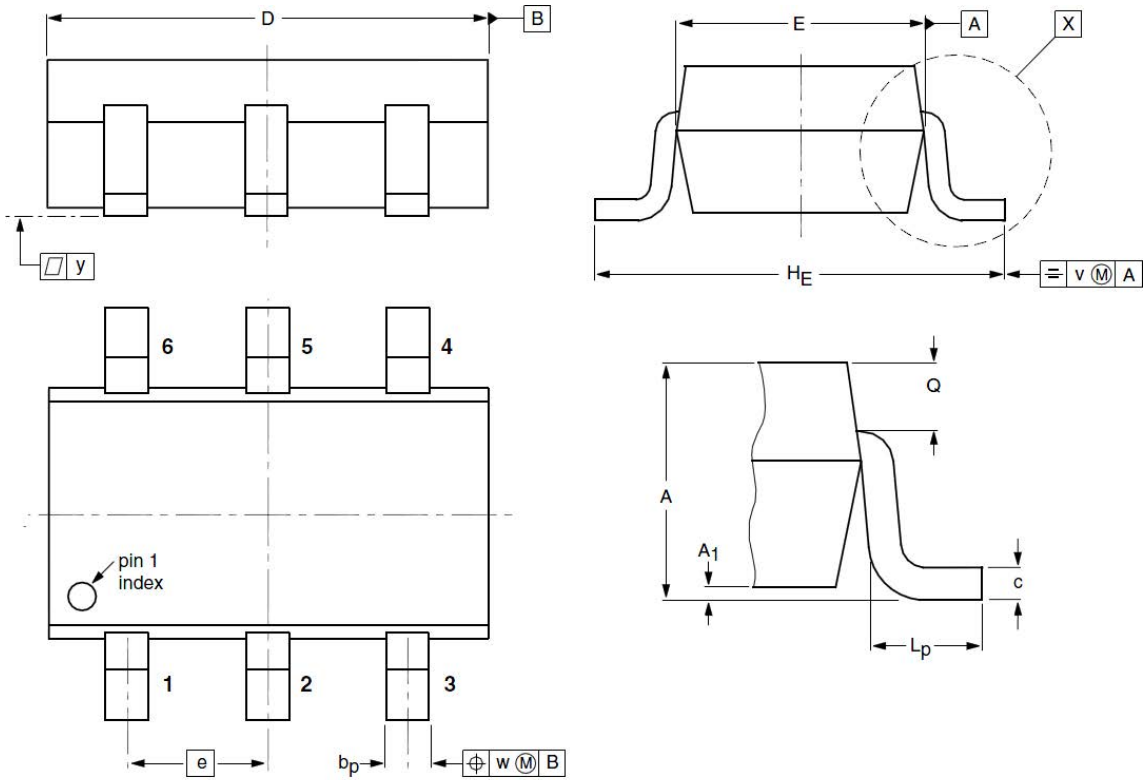


Fig.8 Maximum Safe Operation Area

P-Channel Enhancement Mode MOSFET

GCH&!* @ DUW_Uj Y'Ci h]bY'8]a Ybg]cbg



Gna Vc`	8]a Ybg]cbg (unit:mm)			Gna Vc`	8]a Ybg]cbg (unit:mm)		
	A]b	Hnd	A U		A]b	Hnd	A U
5	0.90	1.07	1.45	5%	0.01	0.05	0.15
V_d	0.30	0.40	0.50	W	0.10	0.15	0.22
'8`	2.70	2.92	3.10	9	1.35	1.55	1.75
Y	--	0.95	--	<_9	2.50	2.80	3.00
@	0.30	0.45	0.60	E	0.23	0.29	0.33
j	--	0.20	--	K	--	0.20	--
m	--	0.10	--				