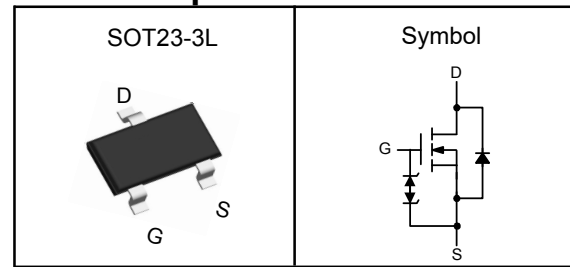


N-Channel Enhancement Mode MOSFET

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_{DSS}	20	V
$R_{DS(ON)-Typ}$	20	m Ω
I_D	6	A

Absolute Maximum Ratings ($T_A=25^{\circ}C$, Unless Otherwise Noted)

Symbol	Parameter	N-Channel	Unit
V_{DSS}	Drain-Source Voltage	20	V
V_{GSS}	Gate-Source Voltage	± 12	V
T_J	Maximum Junction Temperature	-55 to 150	$^{\circ}C$
T_{STG}	Storage Temperature Range	-55 to 150	$^{\circ}C$
$I_{DM}^{①}$	Pulse Drain Current Tested	20	A
I_D	Continuous Drain Current	6	A
P_D	Maximum Power Dissipation	1.25	W

Thermal Characteristics

Symbol	Parameter	Rating	Unit
$R_{\theta JA}$	Thermal Resistance-Junction to Ambient	62.5	$^{\circ}C/W$

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

Note ② : UIS tested and pulse width are limited by maximum junction temperature 150 $^{\circ}C$.

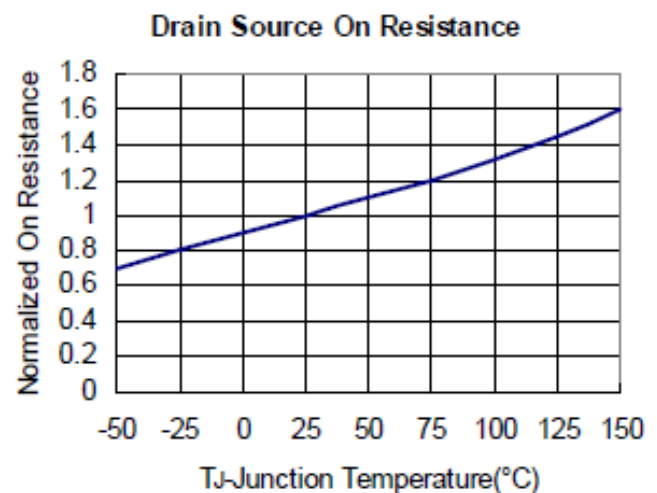
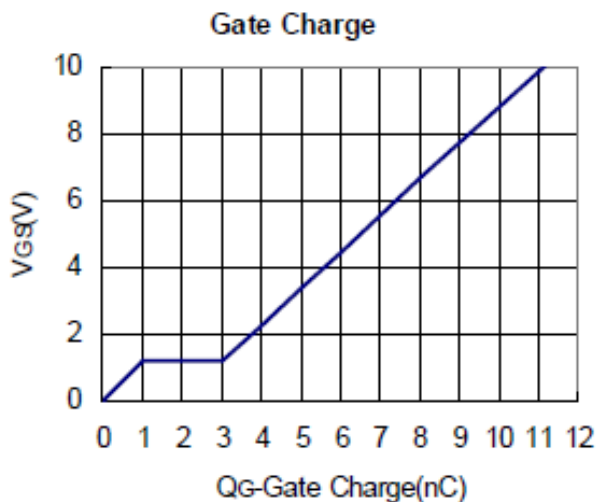
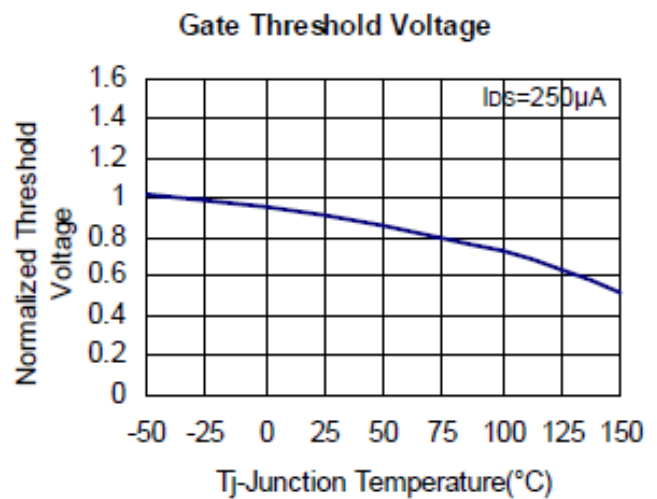
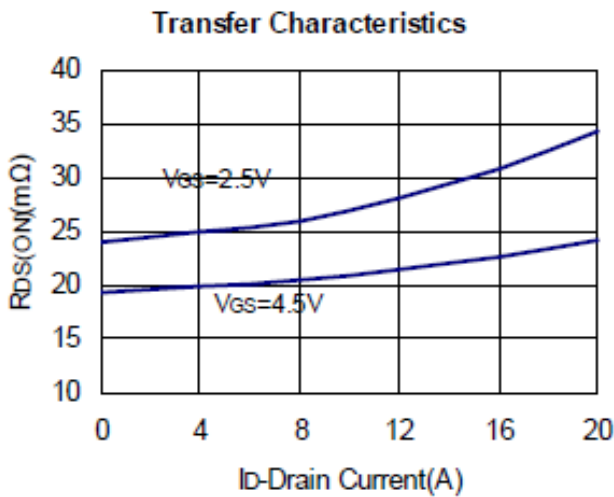
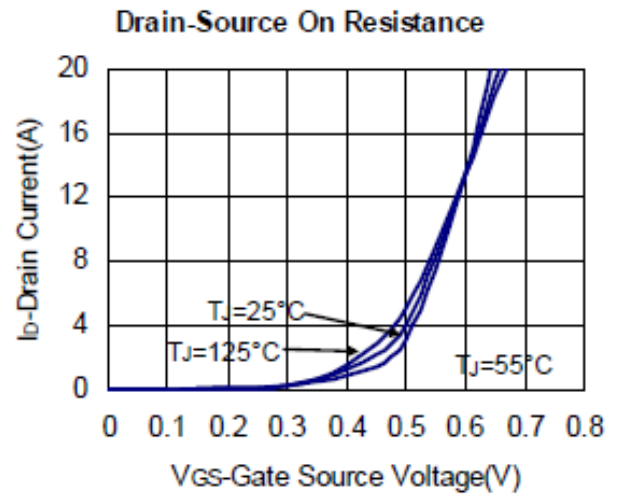
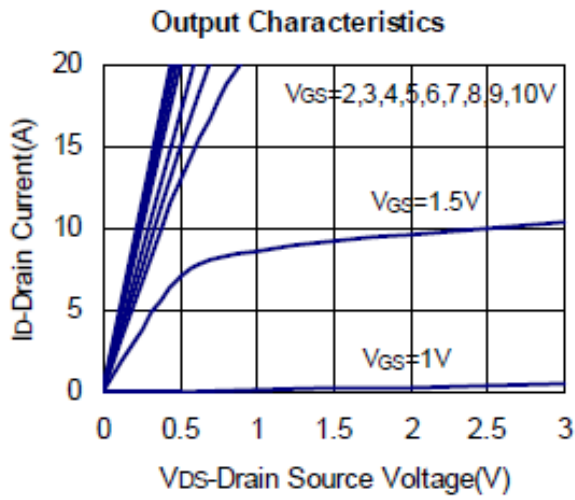
Note ③ : Surface Mounted on 1in² FR-4 board with 1oz.

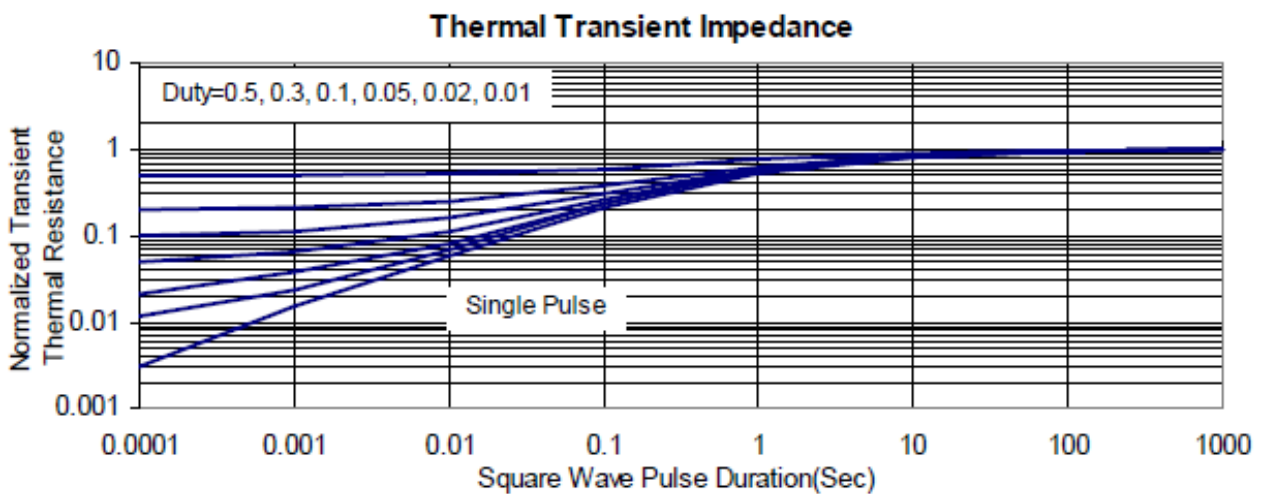
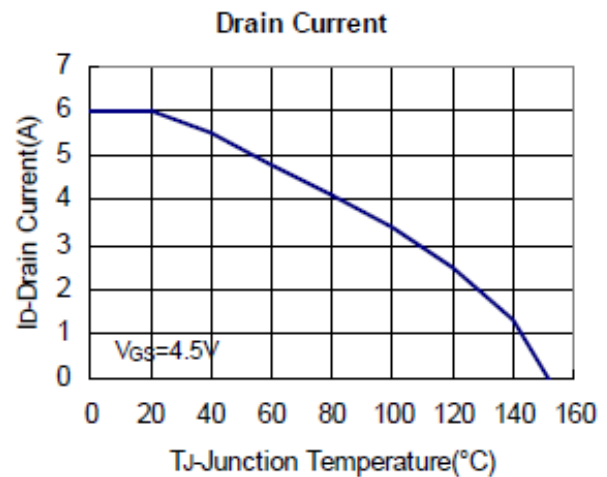
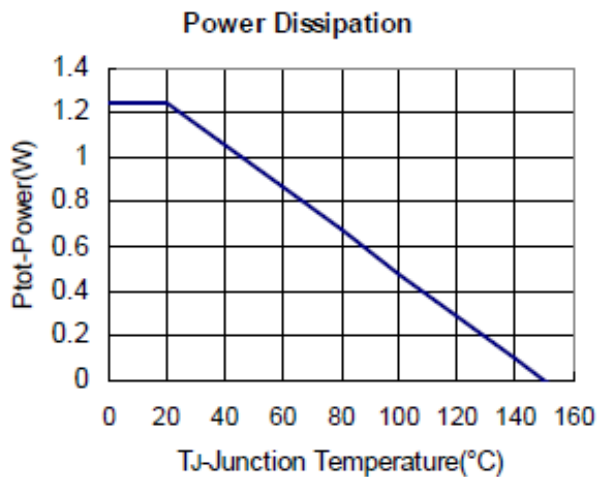
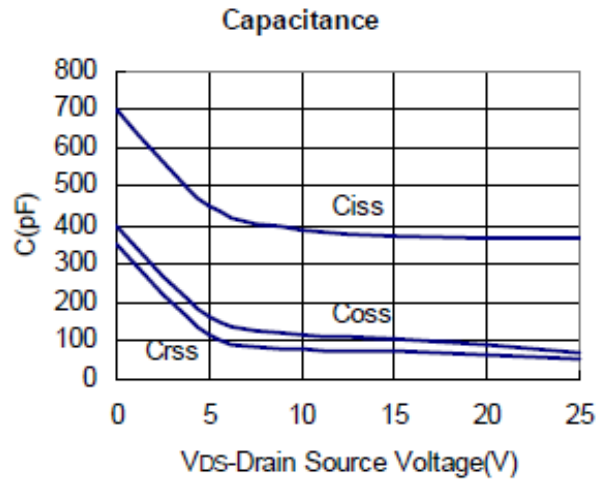
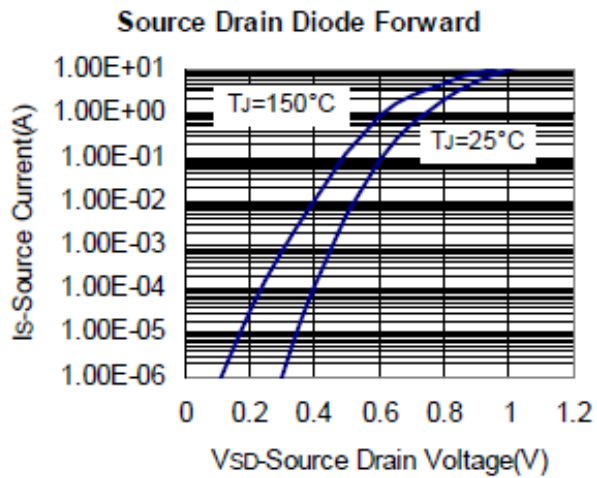
**N-Channel Enhancement Mode MOSFET****Electrical Characteristics** ($T_J=25^{\circ}\text{C}$, Unless Otherwise Noted)

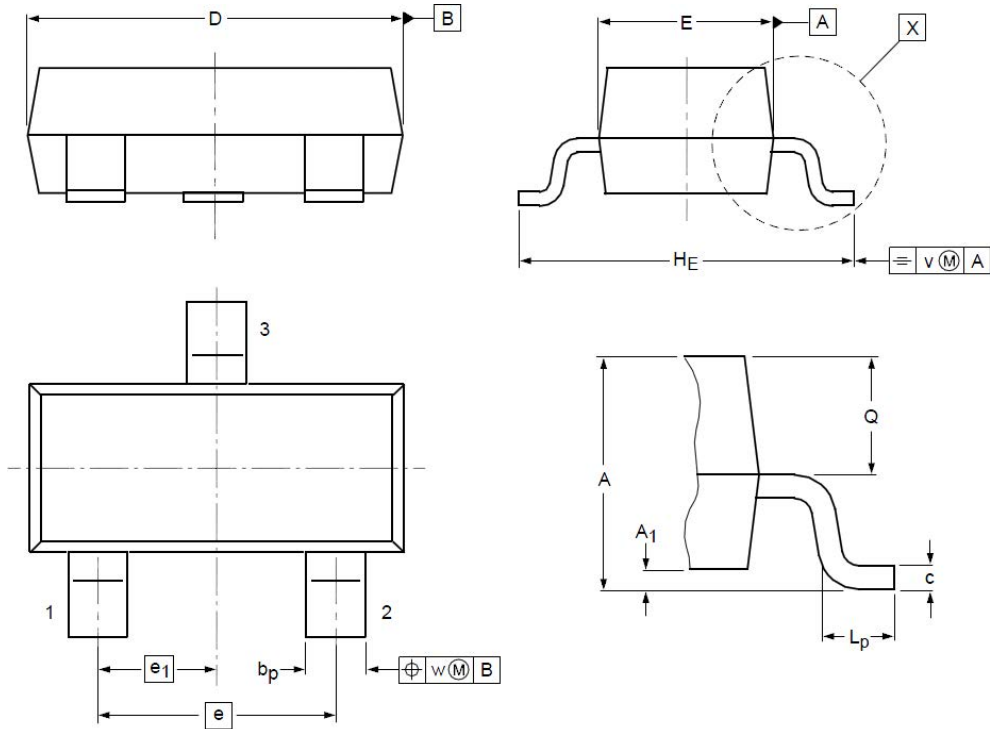
Symbol	Parameter	Test Conditions	Min	Typ	Max	Unit
Static Electrical Characteristics						
BV_{DSS}	Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D=250\mu A$	20	---	---	V
I_{DSS}	Zero Gate Voltage Drain Current	$V_{DS}=16V, V_{GS}=0V$	---	---	1	μA
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS}=V_{GS}, I_D=250\mu A$	0.5	---	1	V
I_{GSS}	Gate Leakage Current	$V_{GS}=\pm 12V, V_{DS}=0V$	---	---	± 100	nA
$R_{DS(on)}$	Drain-Source On-state Resistance	$V_{GS}=4.5V, I_D=6A$	---	20	30	$m\Omega$
		$V_{GS}=2.5V, I_D=5A$	---	24	35	$m\Omega$
gfs	Forward Transconductance	$V_{DS}=5V, I_D=3.6A$	---	10	---	S
Dynamic Characteristics^⑤						
C_{iss}	Input Capacitance	$V_{GS}=0V,$ $V_{DS}=10V,$ Freq.=1MHz	---	595	---	pF
C_{oss}	Output Capacitance		---	140	---	
C_{rss}	Reverse Transfer Capacitance		---	125	---	
$T_{d(on)}$	Turn-on Delay Time	$V_{DS}=10V, I_D=1A,$ $V_{GS}=4.5V,$ $R_G=6\Omega, R_L=10\Omega$	---	3.6	---	nS
T_r	Turn-on Rise Time		---	13.5	---	
$T_{d(off)}$	Turn-off Delay Time		---	32	---	
T_f	Turn-off Fall Time		---	6.6	---	
Q_g	Total Gate Charge	$V_{DS}=10V, V_{GS}=4.5V,$ $I_D=6A$	---	21	---	nC
Q_{gs}	Gate-Source Charge		---	1.3	---	
Q_{gd}	Gate-Drain Charge		---	3.3	---	
Source-Drain Characteristics ($T_J=25^{\circ}\text{C}$)						
$V_{SD}^{④}$	Diode Forward Voltage	$I_S=1.7A, V_{GS}=0V$	---	0.8	1.3	V

Note ④ : Pulse test (pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$).

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

N-Channel Enhancement Mode MOSFET
Typical Characteristics


N-Channel Enhancement Mode MOSFET


N-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	--				