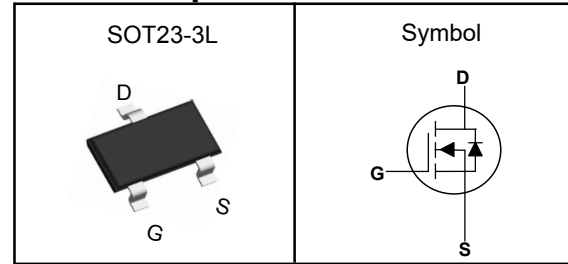


N-Channel Enhancement Mode MOSFET

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}	100	V
R _{DS(ON)-Typ}	112	mΩ
I _D	5	A

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

Symbol	Parameter	N-Channel	Unit
V _{DSS}	Drain-Source Voltage	100	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	10	A
I _D	Continuous Drain Current	5	A
P _D	Maximum Power Dissipation	1.38	W

Thermal Characteristics

Symbol	Parameter	Rating	Unit
R _{θJA} ^③	Thermal Resistance Junction-Ambient	90	°C/W
R _{θJL}	Thermal Resistance-Junction to Lead	45	°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.



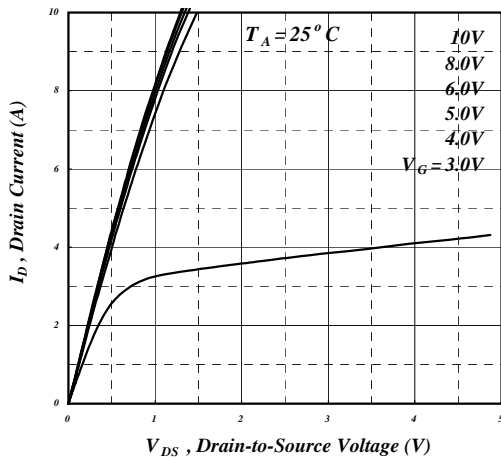
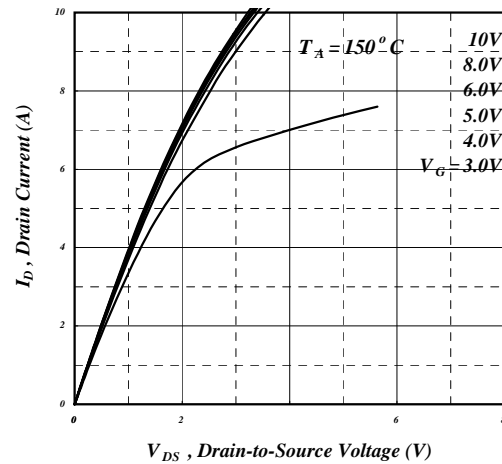
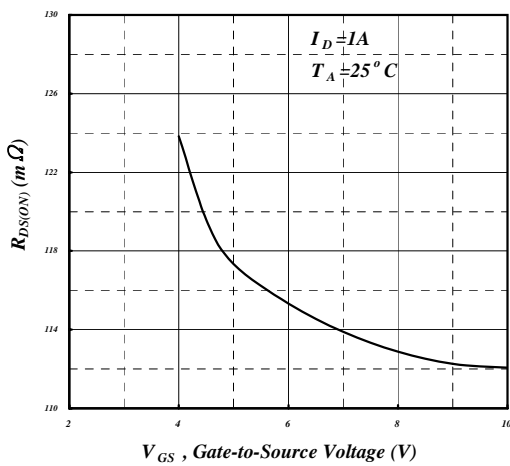
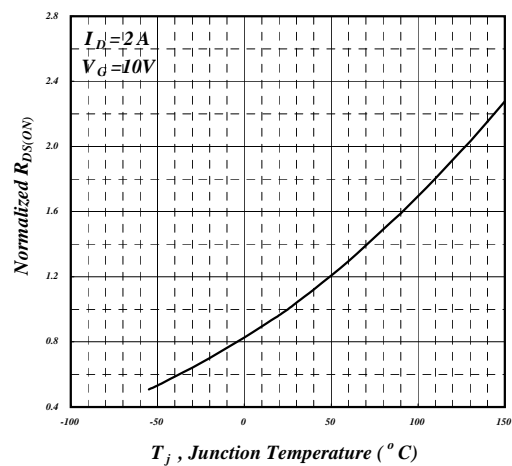
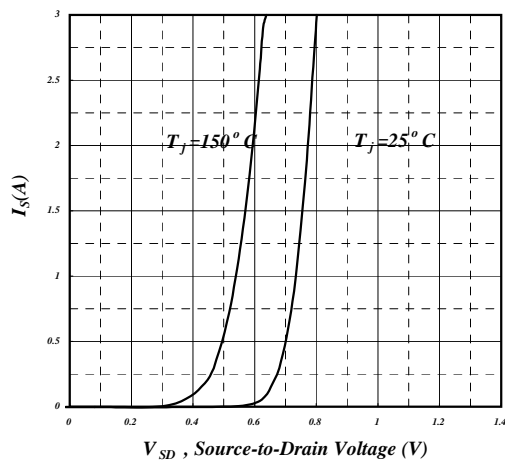
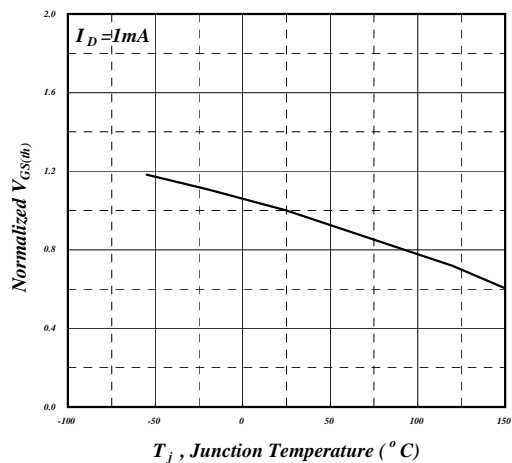
N-Channel Enhancement Mode MOSFET

Electrical Characteristics (T_J=25°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 =250uA	100	---	---	V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =80V, V _{GS} =0V	---	---	25	uA
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _D =250uA	1.0	---	3.0	V
I _{GSS}	Gate Leakage Current	V _{GS} =±20V, V _{DS} =0V	---	---	±100	nA
R _{DS(on)}	Drain-Source On-state Resistance	V _{GS} =10V, I _D =5A	---	112	135	mΩ
		V _{GS} =4.5V, I _D =4A	---	120	145	mΩ
Dynamic Characteristics ^⑤						
C _{iss}	Input Capacitance	V _{GS} =0V, V _{DS} =25V, Freq.=1MHz	---	610	---	pF
C _{oss}	Output Capacitance		---	40	---	
C _{rss}	Reverse Transfer Capacitance		---	25	---	
T _{d(on)}	Turn-on Delay Time	V _{DS} =50V, I _D =1A, V _{GS} =10V, R _G =3.3Ω	---	7	---	nS
T _r	Turn-on Rise Time		---	5	---	
T _{d(off)}	Turn-off Delay Time		---	16	---	
T _f	Turn-off Fall Time		---	6	---	
g _{fs}	Forward Transconductance	V _{DS} =5V, I _D =2A	---	8	---	S
Q _g	Total Gate Charge	V _{DS} =80V, V _{GS} =10V, I _D =2A	---	12	---	nC
Q _{gs}	Gate-Source Charge		---	2.2	---	
Q _{gd}	Gate-Drain Charge		---	2.5	---	
Source-Drain Characteristics (T _J =25°C)						
V _{SD}	Diode Forward Voltage ₂	V _{GS} =0V, I _{SD} =1.2A, T _J =25°C	---	---	1.2	V
t _{rr}	Reverse Recovery Time	I _{SD} =2A, di/dt=100A/μs, T _J =25°C	---	21	---	nS
Q _{rr}	Reverse Recovery Charge		---	21	---	nC

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

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

N-Channel Enhancement Mode MOSFET
Typical Characteristics

Fig 1. Typical Output Characteristics

Fig 2. Typical Output Characteristics

Fig 3. On-Resistance v.s. Gate Voltage

Fig 4. Normalized On-Resistance v.s. Junction Temperature

Fig 5. Forward Characteristic of Reverse Diode

Fig 6. Gate Threshold Voltage v.s. Junction Temperature

N-Channel Enhancement Mode MOSFET

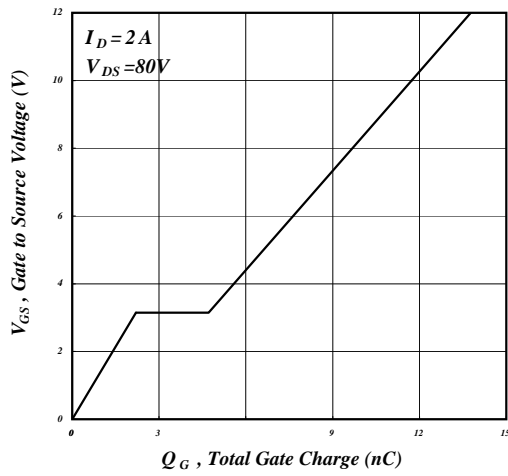


Fig 7. Gate Charge Characteristics

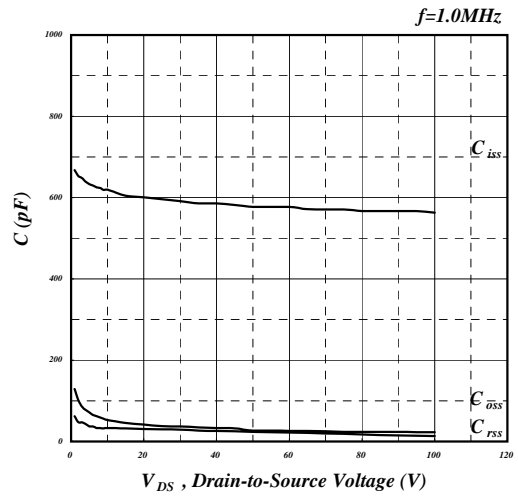


Fig 8. Typical Capacitance Characteristics

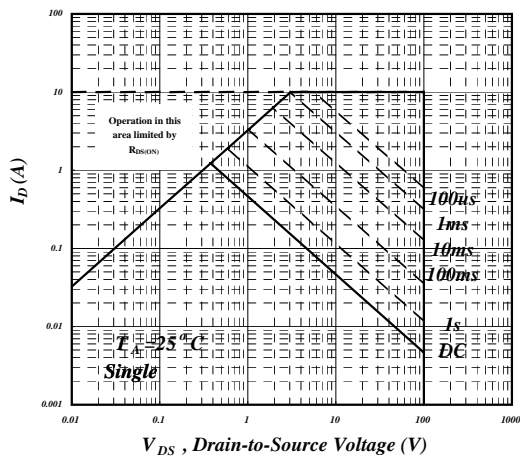


Fig 9. Maximum Safe Operating Area

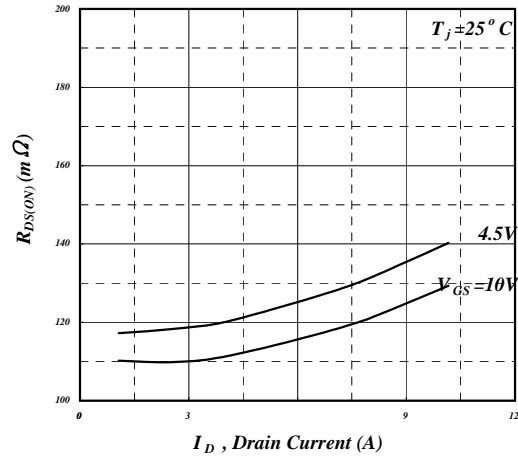


Fig 10. Typ. Drain-Source on State Resistance

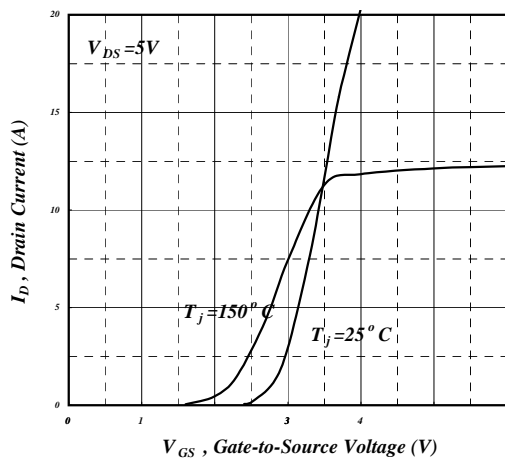


Fig 11. Transfer Characteristics

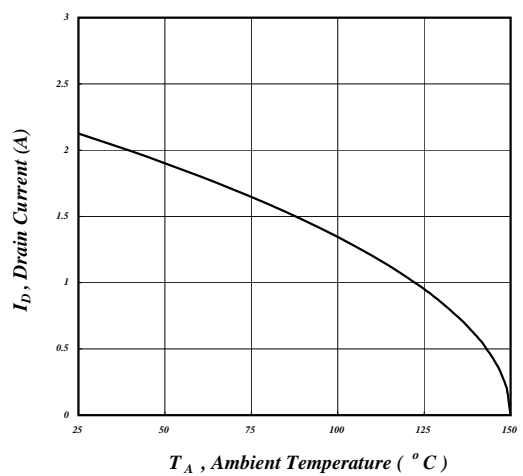
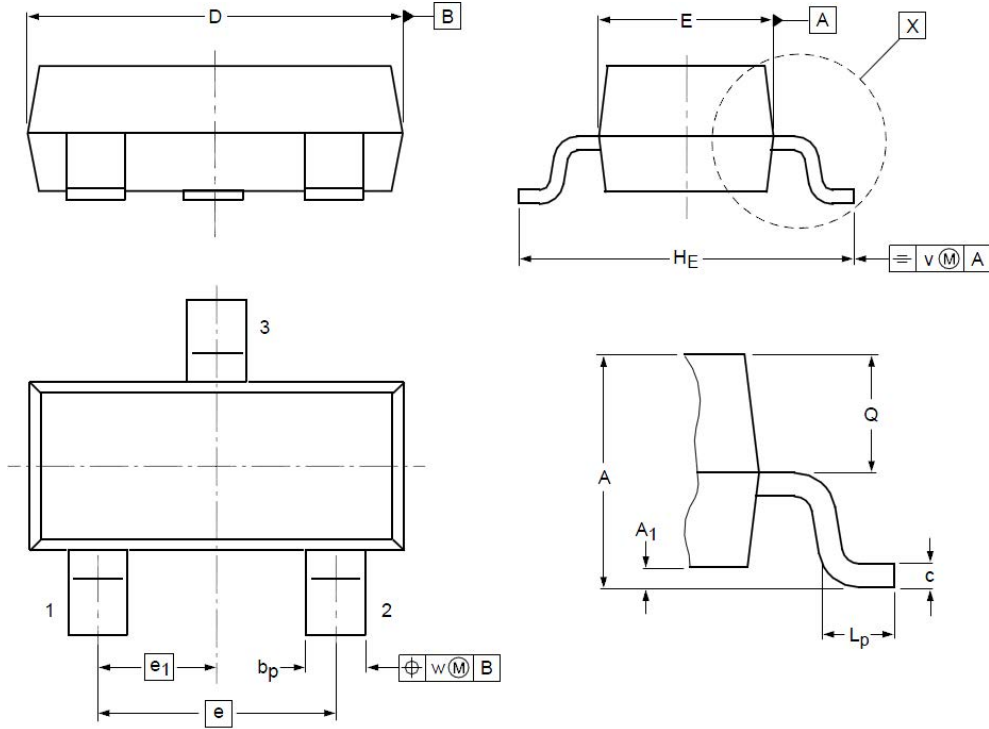


Fig 12. Drain Current v.s. Ambient Temperature

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	--				