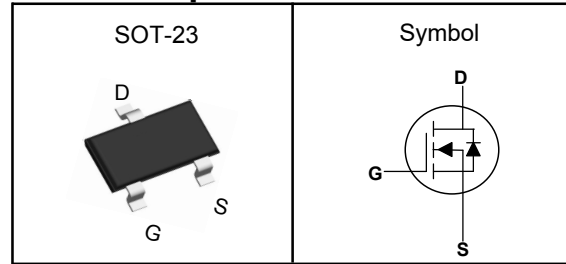


N-Channel Enhancement Mode MOSFET
Features

- Fast switching speed
- Reliable and Rugged
- ROHS Compliant
- 100% UIS and Rg Tested

Applications

- Power Management in Desktop Computer
- DC/DC Converters

Pin Description


V_{DSS}	200	V
$R_{DS(ON)-Typ}$	1400	m Ω
I_D	2	A

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

Symbol	Parameter	Rating	Unit
V_{DSS}	Drain-Source Voltage	200	V
V_{GSS}	Gate-Source Voltage	± 20	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	10	A
I_D	Continuous Drain Current	2	A
P_D	Maximum Power Dissipation	3	W
E_{AS}	Single Pulse Avalanche Energy ³	0.4	mJ
I_{AS}	Avalanche Current	2.8	A

Thermal Characteristics

Symbol	Parameter	Rating	Unit
$R_{\theta JA}$	Thermal Resistance-Junction to Ambient	41.7	$^{\circ}C/W$

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.



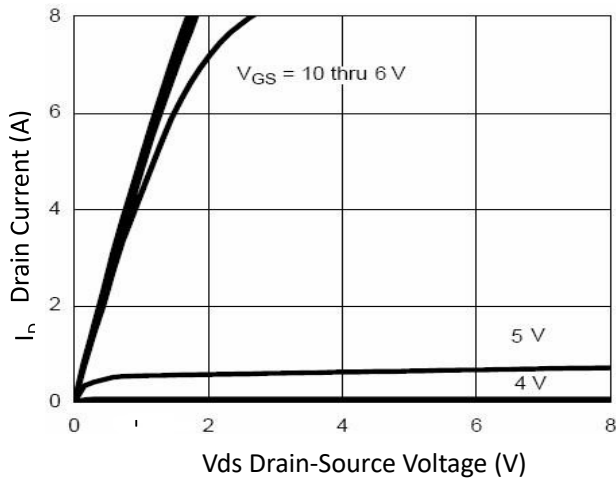
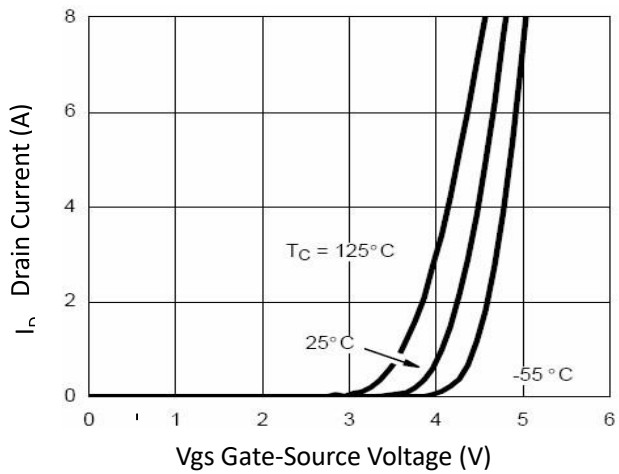
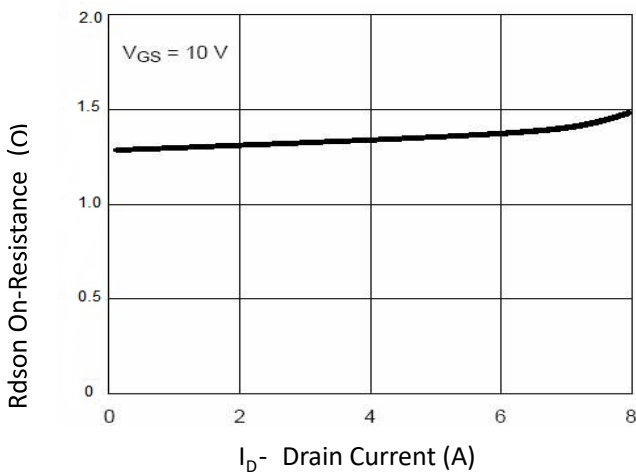
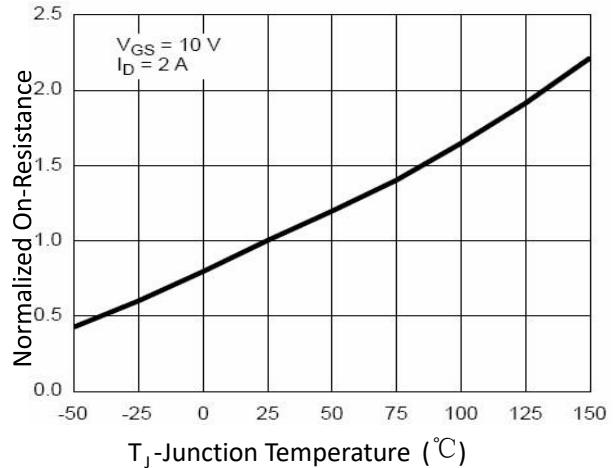
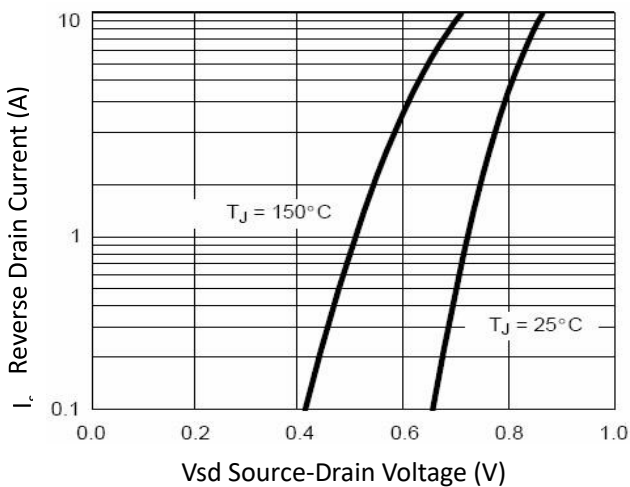
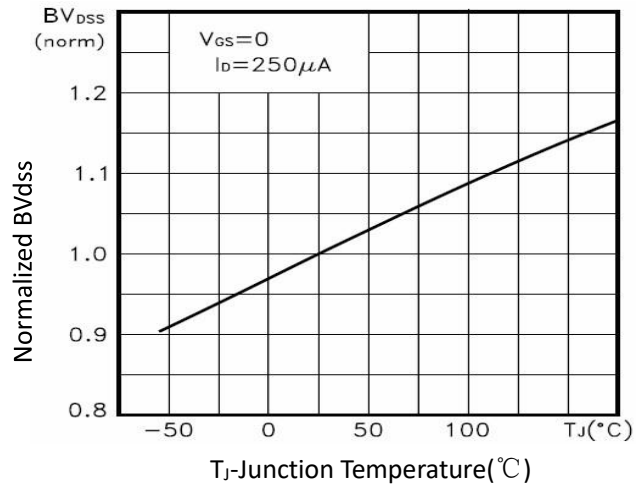
N-Channel Enhancement Mode MOSFET
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Electrical Characteristics ($T_J=25^\circ\text{C}$, Unless Otherwise Noted)

Symbol	Parameter	Test Conditions	Min	Typ	Max	Unit
Static Electrical Characteristics						
BV_{DSS}	Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D=250\mu A$	200	---	---	V
I_{DSS}	Zero Gate Voltage Drain Current	$V_{DS}=200V, V_{GS}=0V$	---	---	1	μA
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS}=V_{GS}, I_D=250\mu A$	1.0	---	3.0	V
I_{GSS}	Gate Leakage Current	$V_{GS}=\pm 20V, V_{DS}=0V$	---	---	± 100	nA
$R_{DS(on)}$	Drain-Source On-state Resistance	$V_{GS}=10V, I_D=2A$	---	1400	1800	m Ω
Dynamic Characteristics^⑤						
C_{iss}	Input Capacitance	$V_{GS}=0V,$ $V_{DS}=25V,$ Freq.=1MHz	---	580	---	pF
C_{oss}	Output Capacitance		---	90	---	
C_{rss}	Reverse Transfer Capacitance		---	3	---	
$T_{d(on)}$	Turn-on Delay Time	$V_{DS}=100V, V_{GS}=10V,$ $R_G=2.5\Omega, R_L=15\Omega,$	---	10	---	nS
T_r	Turn-on Rise Time		---	12	---	
$T_{d(off)}$	Turn-off Delay Time		---	15	---	
T_f	Turn-off Fall Time		---	15	---	
g_{fs}	Forward Transconductance	$V_{DS}=15V, I_D=2A$	---	8	---	S
Q_g	Total Gate Charge	$V_{DS}=100V,$ $V_{GS}=2V, I_D=1A$	---	12	---	nC
Q_{gs}	Gate-Source Charge		---	2.5	---	
Q_{gd}	Gate-Drain Charge		---	3.8	---	
Source-Drain Characteristics ($T_J=25^\circ\text{C}$)						
V_{SD}	Diode Forward Voltage ₂	$V_{GS}=0V, I_S=2A, T_J=25^\circ\text{C}$	---	---	1.2	V
t_{rr}	Reverse Recovery Time	$I_F=0.5A, V_R=20V$ $di/dt=100A/\mu s, T_J=25^\circ\text{C}$	---	18	---	nS
Q_{rr}	Reverse Recovery Charge		---	9	---	nC

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

Figure 1 Output Characteristics

Figure 2 Transfer Characteristics

Figure 3 Rdson- Drain Current

Figure 4 Rdson-Junction Temperature

Figure 5 Source- Drain Diode Forward

Figure 6 BV_{DSS} vs Junction Temperature

N-Channel Enhancement Mode MOSFET

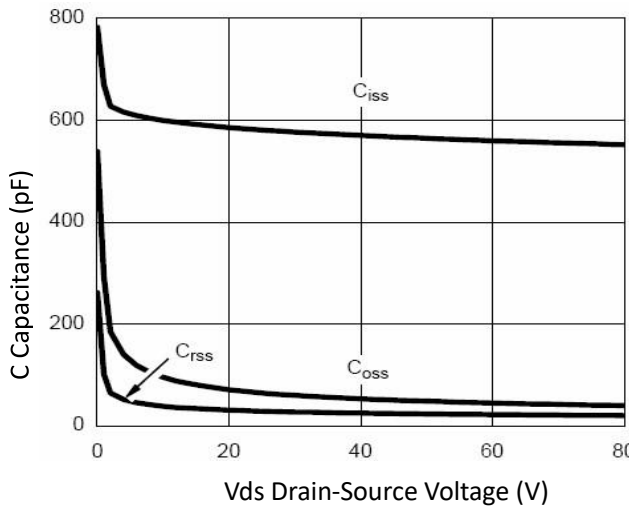


Figure 7 Capacitance vs Vds

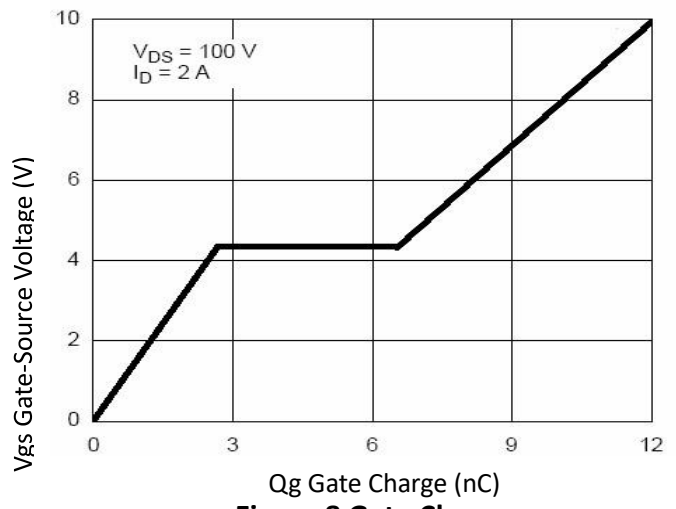


Figure 8 Gate Charge

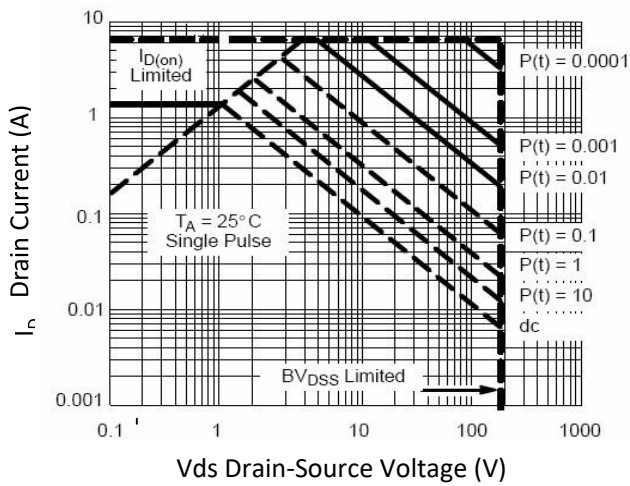


Figure 9 Safe Operation Area

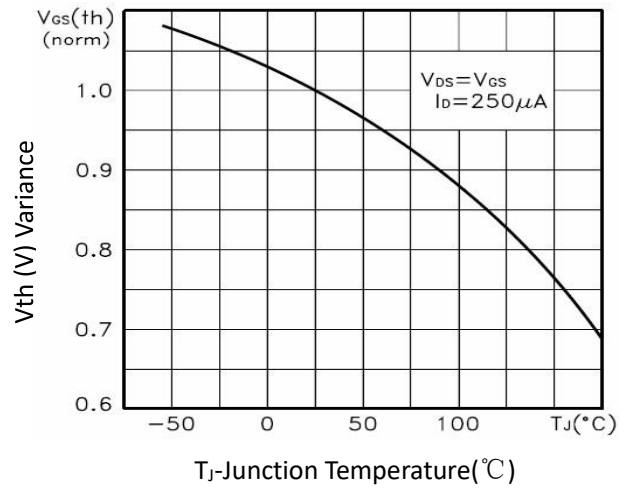


Figure 10 $V_{GS(th)}$ vs Junction Temperature

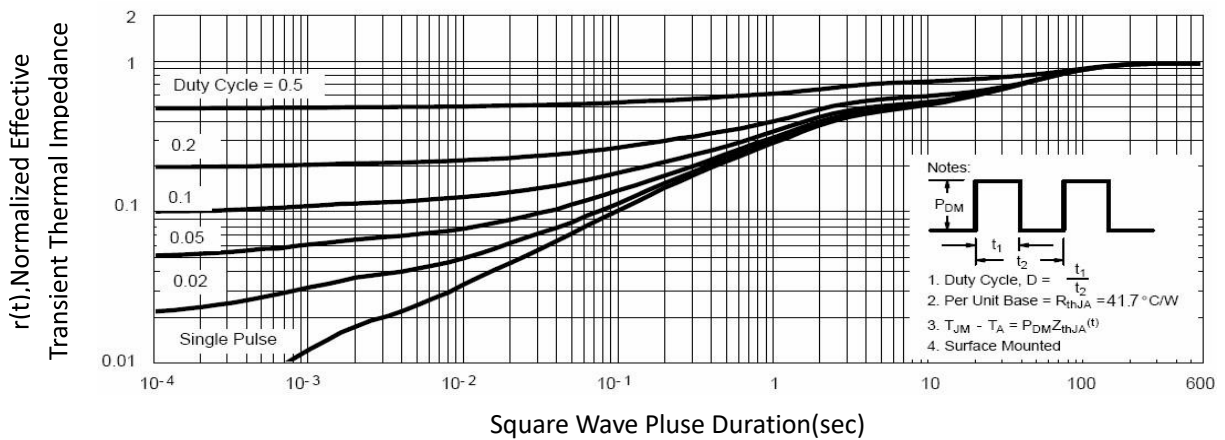
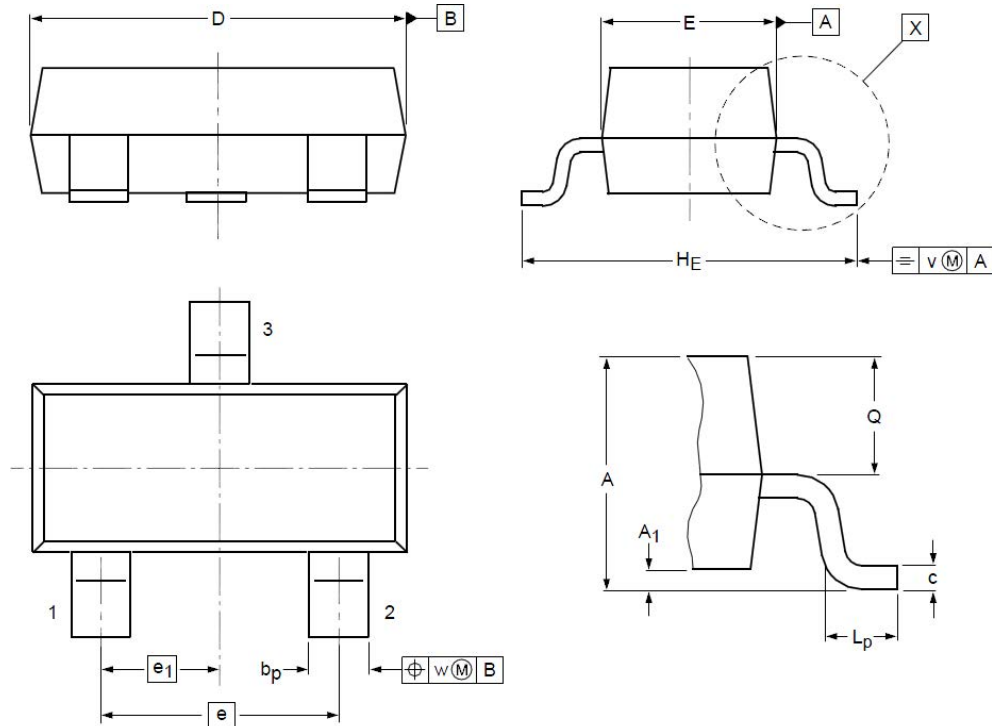


Figure 11 Normalized Maximum Transient Thermal Impedance

N-Channel Enhancement Mode MOSFET
SOT23 Package Outline Dimensions


Symbol	Dimensions (unit:mm)			Symbol	Dimensions (unit:mm)		
	Min	Typ	Max		Min	Typ	Max
A	0.90	1.05	1.20	e₁	--	0.95	--
A₁	0.01	0.05	0.10	H_E	2.10	2.40	2.50
b_p	0.38	0.42	0.48	L_p	0.40	0.50	0.60
c	0.09	0.13	0.15	Q	0.45	0.49	0.55
D	2.80	2.92	3.00	V	--	0.20	--
E	1.20	1.33	1.40	W	--	0.10	--
e	--	1.90	--				