N-Channel Enhancement Mode MOSFET

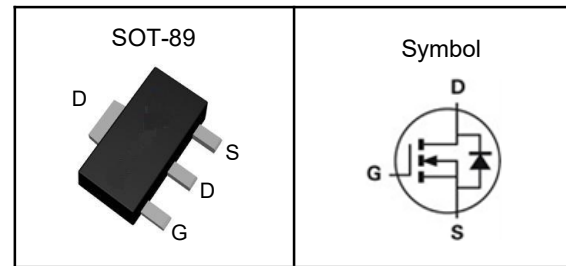## Features

- Low Rdson for low conduction loss
- Reliable and Rugged
- ROHS Compliant & Halogen-Free

Applications

- Power Management in Desktop Computer
- DC/DC Converters

Pin Description

V_{DSS}	200	V
$R_{DS(ON)-Typ}$	550	mΩ
I_D	2	A

Absolute Maximum Ratings(T_J=25℃, 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	℃
T_{STG}	Storage Temperature Range	-55 to 150	℃
I_{DM}[①]	Pulse Drain Current Tested	8	A
I_D	Continuous Drain Current	2	A
P_D	Maximum Power Dissipation	1.5	W

Thermal Characteristics

Symbol	Parameter	Rating	Unit
$R_{\theta JA}$	Thermal Resistance-Junction to Ambient	83.3	℃/W

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

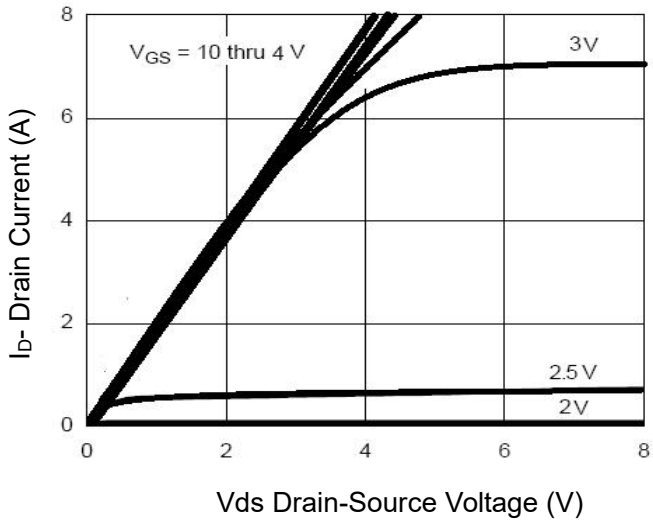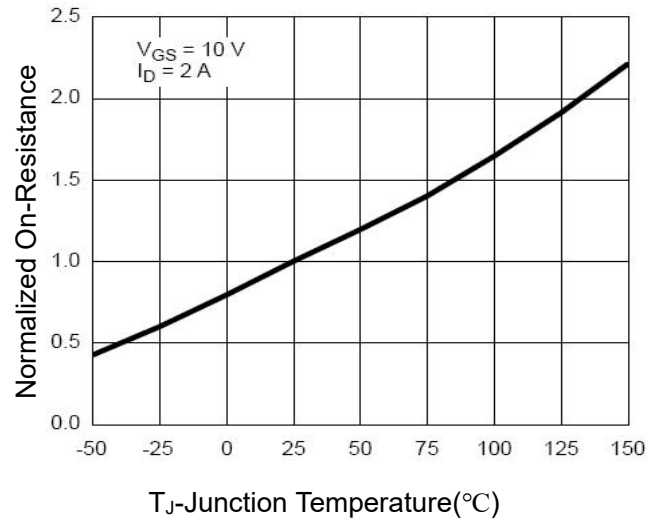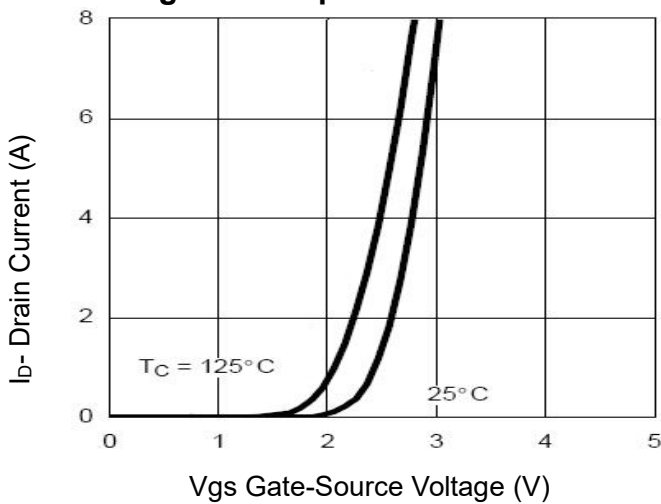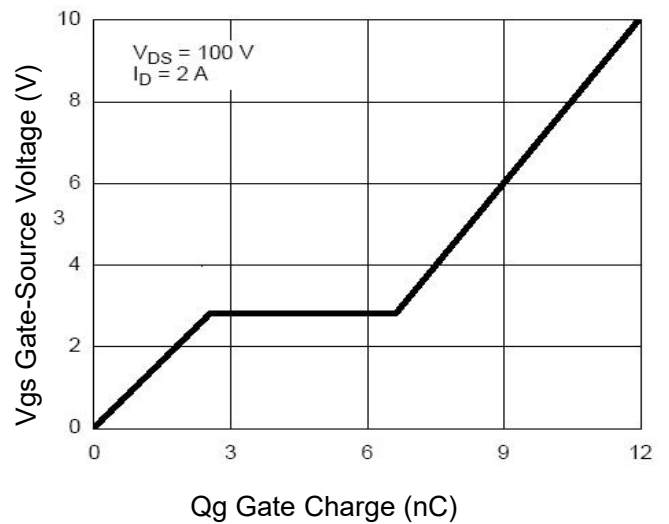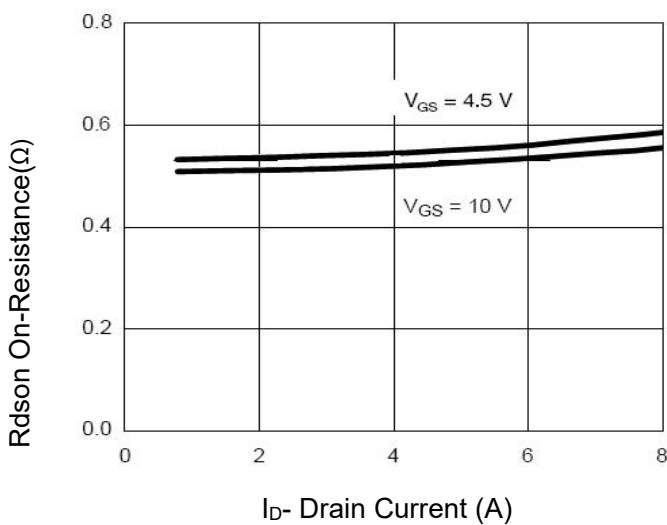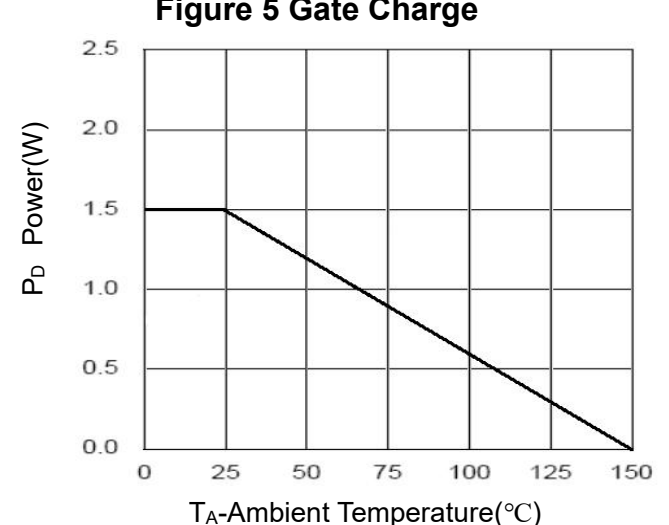Note ② : UIS tested and pulse width are limited by maximum junction temperature 150℃.
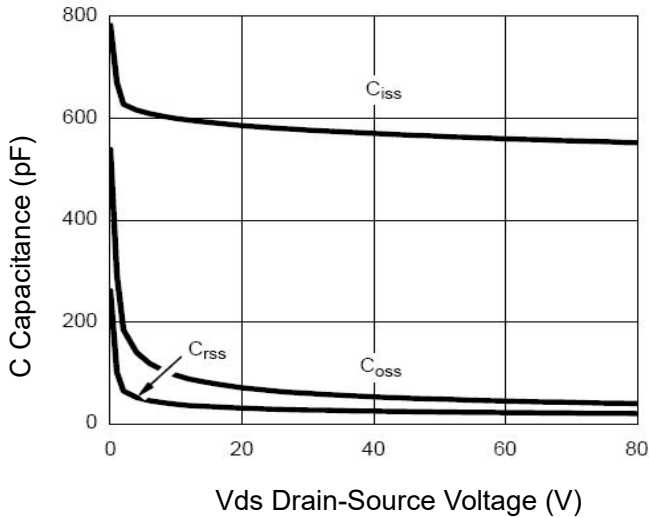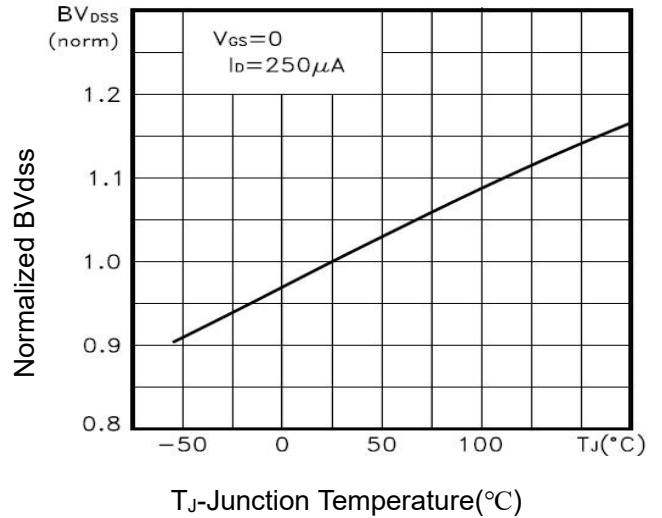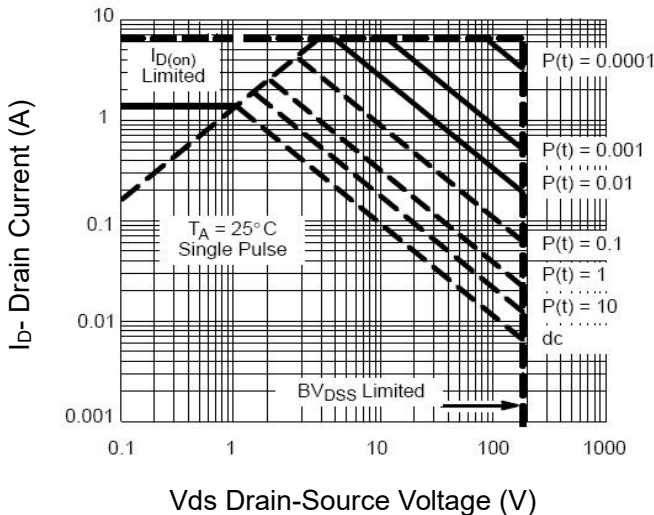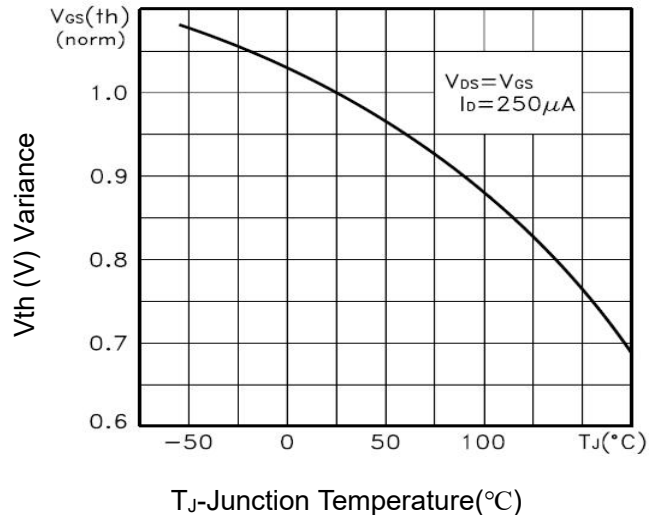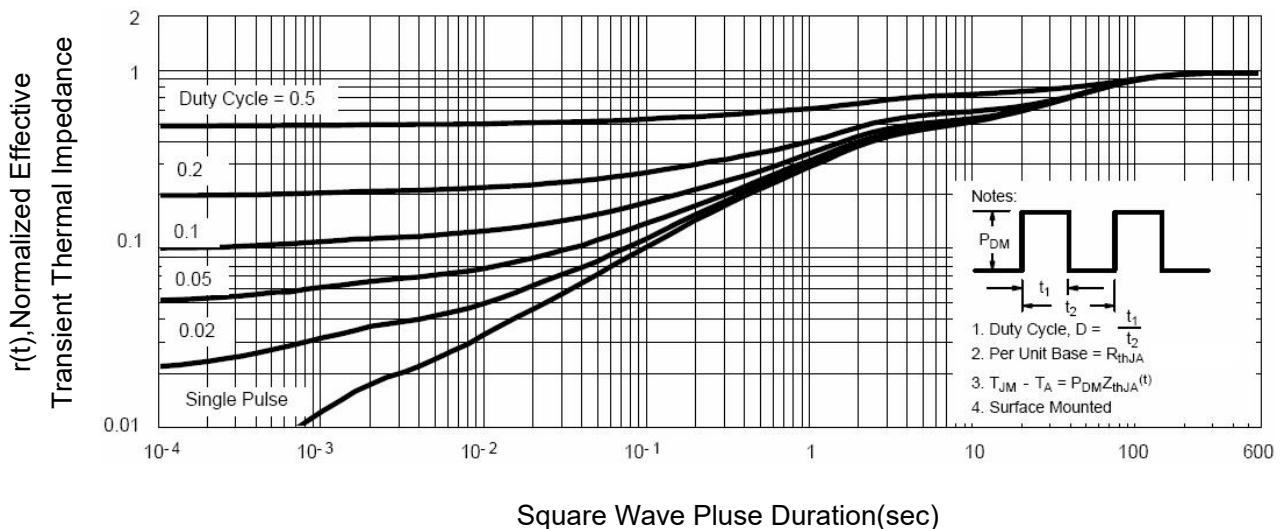
Note ③ : Surface Mounted on 1in^2 FR-4 board with 1oz.

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Electrical Characteristics $(T_J=25℃$, Unless Otherwise Noted)

Symbol	Parameter	Test Conditions	Min	Typ	Max	Unit
Static Electrical Characteristics						
BV_{DSS}	Drain-Source Breakdown Voltage	$V_{GS}=0V$, $I_D=250uA$	200	---	---	V
I_{DSS}	Zero Gate Voltage Drain Current	$V_{DS}=200V$, $V_{GS}=0V$	---	---	1	uA
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS}=V_{GS}$, $I_D=250uA$	1	---	2	V
I_{GSS}	Gate Leakage Current	$V_{GS}=±20V$, $V_{DS}=0V$	---	---	$±100$	nA
$R_{DS(ON)}$	Drain-Source On-state Resistance	$V_{GS}=10V$, $I_D=2A$	---	550	600	mΩ
		$V_{GS}=4.5V$, $I_D=2A$	---	570	620	mΩ
Dynamic Characteristics⑤						
C_{iss}	Input Capacitance	$V_{DS}=25V$, $V_{GS}=0V$, Freq.=1MHz	---	585	---	pF
C_{oss}	Output Capacitance		---	90	---	
C_{rss}	Reverse Transfer Capacitance		---	3	---	
$T_{d(on)}$	Turn-on Delay Time	$V_{DD}=100V$,$V_{GS}=10V$, ,$R_G=2.5Ω$	---	10	---	nS
T_r	Turn-on Rise Time		---	12	---	
$T_{d(off)}$	Turn-off Delay Time		---	15	---	
T_f	Turn-off Fall Time		---	15	---	
Q_g	Total Gate Charge	$V_{DS}=100V$,$V_{GS}=10V$, $I_D=2A$	---	12	---	nC
Q_{gs}	Gate-Source Charge		---	2.5	---	
Q_{gd}	Gate-Drain Charge		---	3.8	---	
Source-Drain Characteristics						
V_{SD}	Diode Forward Voltage	$I_S=2A$, $V_{GS}=0V$	---	---	1.2	V

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

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

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Typical Characteristics

Figure 1 Output Characteristics

Figure 2 Transfer Characteristics

Figure 3 Rdson- Drain Current

Figure 4 Rdson-JunctionTemperature

Figure 5 Gate Charge

Figure 6 Power Dissipation

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Figure 7 Capacitance vs Vds

Figure 9 BV$_{DSS}$ vs Junction Temperature

Figure 8 Safe Operation Area

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

Figure 11 Normalized Maximum Transient Thermal Impedance

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SOT-89 Package Outline Data

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COMMON DIMENSIONS CUNITS MEASURE=MILLIMETER			
SYMBOL	MIN	NOM	MAX
A	2.35	2.45	2.55
A1	4.00	4.10	4.20
A2	1.45	1.50	1.55
B	4.40	4.50	4.60
B1		1.55 REF	
B2	1.00	1.10	1.20
B3		1.63 REF	
C	1.45	1.50	1.55
C1	0.39	0.40	0.41
C2	0.4	0.48	0.55
C3	0.35	0.4	0.45
E1	2.65	2.75	2.85