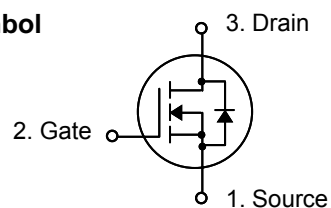


Logic N-Channel MOSFET

Features

- $R_{DS(on)}$ (Max $5\ \Omega$)@ $V_{GS}=10V$
 $R_{DS(on)}$ (Max $5.3\ \Omega$)@ $V_{GS}=4.5V$
- Gate Charge (Typical $0.5nC$)
- Maximum Junction Temperature Range ($150^{\circ}C$)

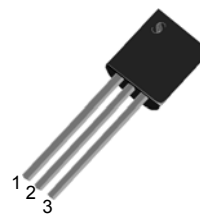
Symbol



General Description

This Power MOSFET is produced using planar DMOS technology. And this Power MOSFET is well suited for Battery switch, Load switch, Motor controller and other small signal switches.

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Absolute Maximum Ratings

Symbol	Parameter	Value	Units
V_{DSS}	Drain to Source Voltage	60	V
I_D	Continuous Drain Current(@ $T_A = 25^{\circ}C$)	200	mA
I_{DM}	Drain Current Pulsed (Note 1)	500	mA
V_{GS}	Gate to Source Voltage	± 20	V
P_D	Total Power Dissipation Single Operation ($T_A=25^{\circ}C$)	0.4	W
	Total Power Dissipation Single Operation ($T_A=70^{\circ}C$)	3.2	mW
T_{STG}, T_J	Operating Junction Temperature & Storage Temperature	- 55 ~ 150	$^{\circ}C$
T_L	Maximum Lead Temperature for soldering purpose, 1/8 from Case for 10 seconds.	300	$^{\circ}C$

Thermal Characteristics

Symbol	Parameter	Value			Units
		Min.	Typ.	Max.	
$R_{\theta JA}$	Thermal Resistance, Junction-to-Ambient	-	-	312.5	$^{\circ}C/W$

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Electrical Characteristics ($T_J = 25\text{ }^{\circ}\text{C}$ unless otherwise noted)

Symbol	Parameter	Test Conditions	Min	Typ	Max	Units
Off Characteristics						
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} = 0V, I _D = 250uA	60	-	-	V
Δ BV _{DSS} / Δ T _J	Breakdown Voltage Temperature coefficient	I _D = 250uA, referenced to 25 °C	-	48	-	mV/°C
I _{DSS}	Drain-Source Leakage Current	V _{DS} = 60V, V _{GS} = 0V V _{DS} = 60V, V _{GS} = 0V, T _J = 125 °C	-	-	1 1000	uA
I _{GSS}	Gate-Source Leakage, Forward	V _{GS} = 20V, V _{DS} = 0V			100	nA
	Gate-Source Leakage, Reverse	V _{GS} = -20V, V _{DS} = 0V	-	-	-100	nA
On Characteristics						
V _{GS(th)}	Gate Threshold Voltage	V _{DS} = V _{GS} , I _D = 250uA	1.0	-	2.5	V
R _{DS(ON)}	Static Drain-Source On-state Resistance	V _{GS} = 10 V, I _D = 500mA V _{GS} = 4.5 V, I _D = 75mA	- -	1.55 1.9	5 5.3	Ω
Dynamic Characteristics						
C _{iss}	Input Capacitance	V _{GS} =0 V, V _{DS} =25V, f = 1MHz	-	20	25	pF
C _{oss}	Output Capacitance		-	11	14	
C _{rss}	Reverse Transfer Capacitance		-	3	4	
Dynamic Characteristics						
t _{d(on)}	Turn-on Delay Time	V _{DD} =30V, I _D =200mA, R _G =50Ω V _{GS} = 10 V (Note 2,3)	-	4	18	ns
t _r	Rise Time		-	2.5	15	
t _{d(off)}	Turn-off Delay Time		-	17	44	
t _f	Fall Time		-	7	24	
Q _g	Total Gate Charge	V _{DS} =30V, V _{GS} =4.5V, I _D =200mA (Note 2,3)	-	0.5	0.65	nC
Q _{gs}	Gate-Source Charge		-	0.15	-	
Q _{gd}	Gate-Drain Charge(Miller Charge)		-	0.2	-	

Source-Drain Diode Ratings and Characteristics

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit.
I_S	Maximum Continuous Diode Forward Current		-	-	200	mA
V_{SD}	Diode Forward Voltage	$I_S = 200mA, V_{GS} = 0V$ (Note 2)	-	-	1.2	V

※ NOTES

1. Repeativity rating : pulse width limited by junction temperature
2. Pulse Test : Pulse Width $\leq 300\mu s$, Duty Cycle $\leq 2\%$
3. Essentially independent of operating temperature.



Fig 1. On-State Characteristics

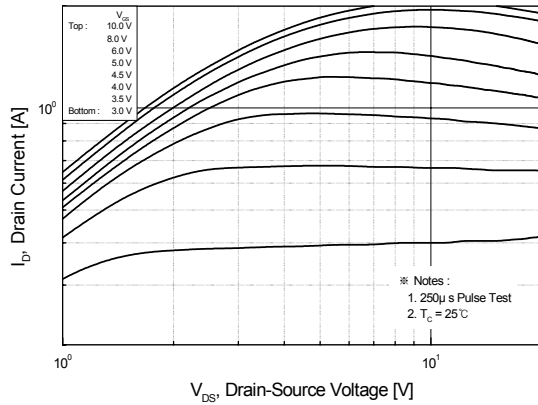


Fig 2. Transfer Characteristics

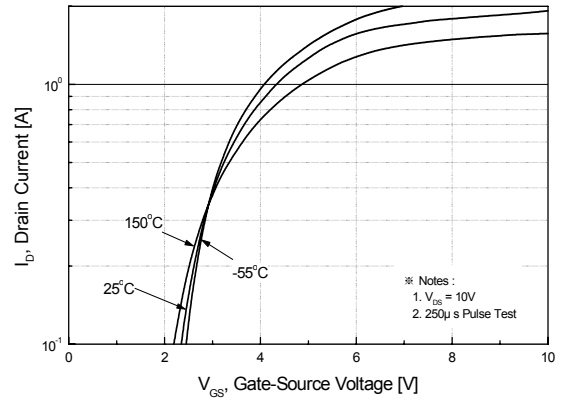


Fig 3. On Resistance Variation vs. Drain Current and Gate Voltage

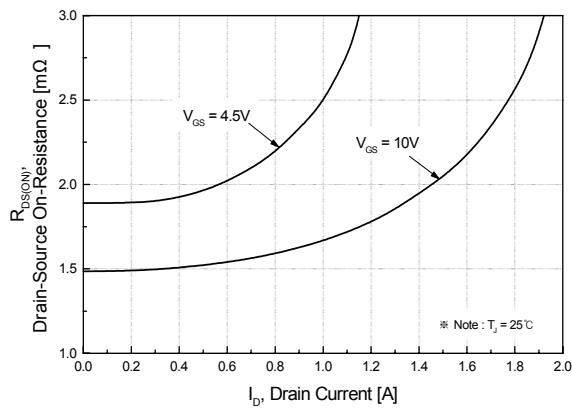


Fig 4. On State Current vs. Allowable Case Temperature

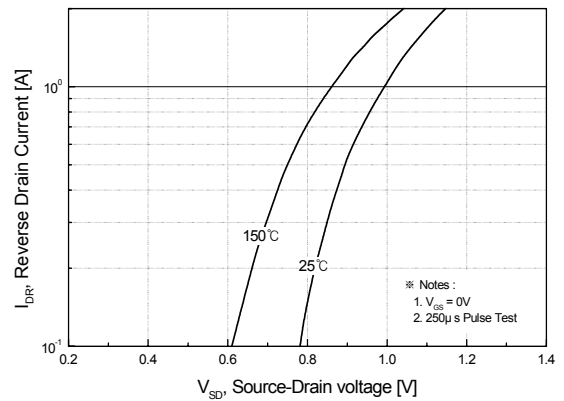


Fig 5. Capacitance Characteristics

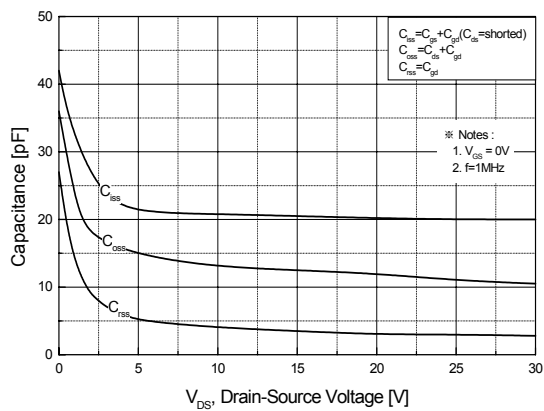
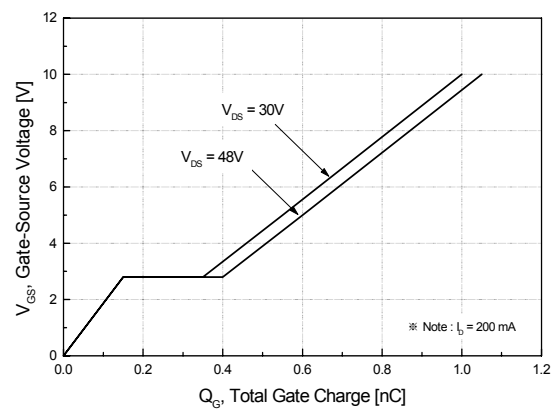
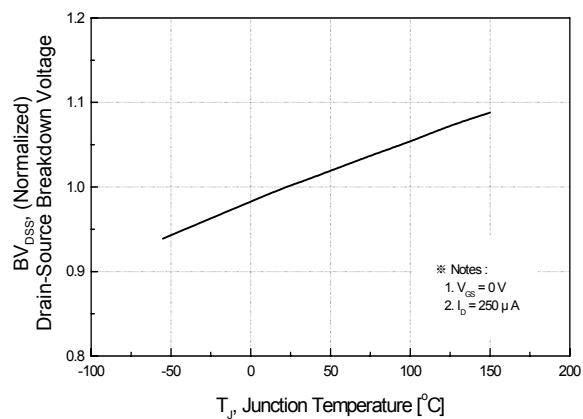


Fig 6. Gate Charge Characteristics



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**Fig 7. Breakdown Voltage Variation
vs. Junction Temperature**



**Fig 8. On-Resistance Variation
vs. Junction Temperature**

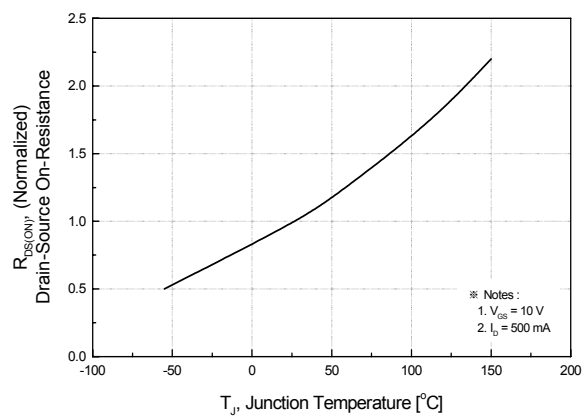


Fig. 9. Gate Charge Test Circuit & Waveforms

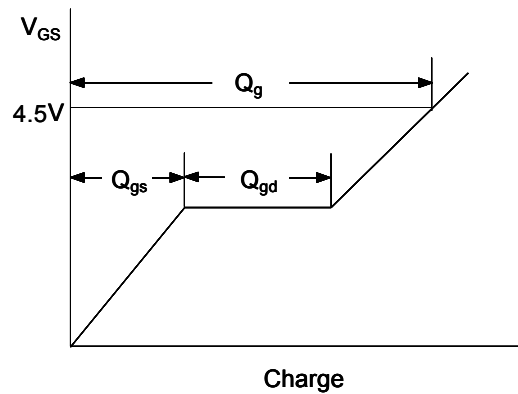
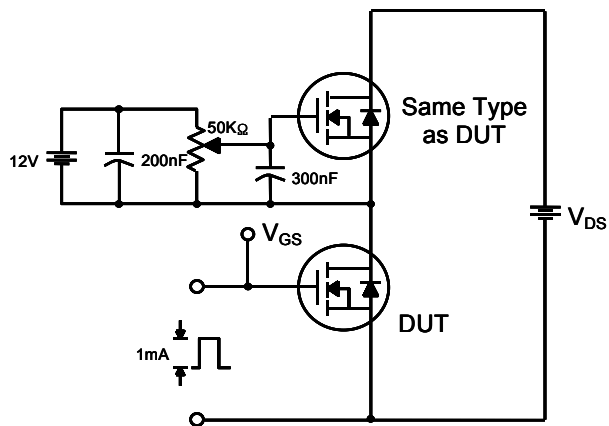
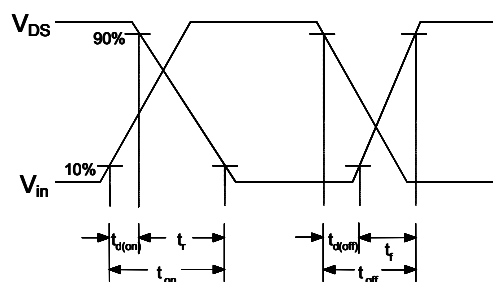
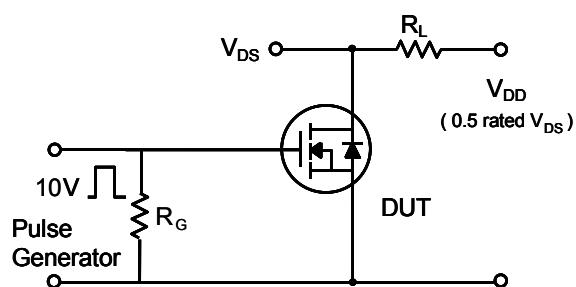


Fig 10. Switching Time Test Circuit & Waveforms



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TO-92 Package Dimension

Dim.	mm			Inch		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A		4.2			0.165	
B			3.7			0.146
C	4.43		4.83	0.174		0.190
D	14.07		14.87	0.554		0.585
E			0.4			0.016
F	4.43		4.83	0.174		0.190
G			0.45			0.017
H		2.54			0.100	
I		2.54			0.100	
J	0.33		0.48	0.013		0.019

