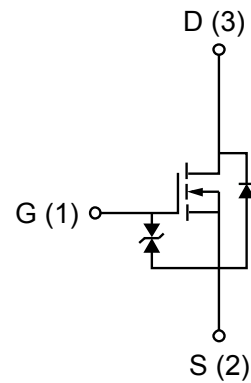


Description

The MOSFET provide the best combination of fast switching, low on-resistance and cost-effectiveness.

MOSFET Product Summary		
$V_{DS}(V)$	$R_{DS(on)}(\Omega)$	$I_D(A)$
50	1@ $V_{GS}=10V$	0.22



Absolute maximum rating@25°C

Parameter	Symbol	Maximum	Units
Drain-Source Voltage	V_{DS}	50	V
Gate-Source Voltage	V_{GS}	±20	V
Drain Current- Continuous	I_D	0.22	A
Drain Current-Pulsed(Note 1)	I_{DM}	0.88	A
Maximum Power Dissipation	P_D	0.35	W
Operating Junction and Storage Temperature Range	T_J, T_{STG}	-55 to 150	°C
Thermal Characteristics			
Parameter	Symbol	Maximum	Units
Thermal Resistance, Junction-to-Ambient	$R_{\theta JA}$	350	°C/W

Electrical characteristics per line@25°C (unless otherwise specified)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Units
Off Characteristics						
Drain-Source Breakdown Voltage	BV_{DSS}	$I_D = 250\mu A, V_{GS} = 0V$	50		-	V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = 50V, V_{GS} = 0V$	-	-	1	μA
Gate-Body Leakage Current	I_{GSS}	$V_{DS} = 0V, V_{GS} = \pm 12V$			± 10	μA
On Characteristics(Note 3)						
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\mu A$	0.6	1.1	1.6	V
Static Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS} = 5V, I_D = 0.2A$	-	1.3	3	Ω
		$V_{GS} = 10V, I_D = 0.22A$		1	2	
Drain-Source Diode Forward Voltage	V_{SD}	$V_{GS} = 0V, I_S = 0.22A$		-	1.3	V
Forward Transconductance	g_{fs}	$V_{DS} = 10V, I_D = 0.2A$	0.2			S
Dynamic Characteristics(Note 4)						
Input Capacitance	C_{iss}	$V_{DS} = 25V, V_{GS} = 0V,$ $f = 1.0MHz$		30		pF
Output Capacitance	C_{oss}			15		
Reverse Transfer Capacitance	C_{rss}			6		
Total Gate Charge	Q_g	$V_{GS} = 10V, V_{DS} = 25V,$ $I_D = 0.2A$			2.4	nC
Switching Characteristics(Note 4)						
Turn-On Delay Time	$t_{d(on)}$	$V_{DD} = 30V, V_{GS} = 10V,$ $R_G = 6\Omega,$ $I_D = 0.22A$	-		5	ns
Turn-Off Delay Time	$t_{d(off)}$		-		60	ns
Turn-On Rise Time	t_r		-		5	ns
Turn-On Fall Time	t_f		-		35	ns
Diode Forward Current(Note 2)	I_S				0.22	A
Diode Forward Voltage(Note 3)	V_{SD}	$V_{GS} = 0V, I_S = 0.22A$			1.3	V

Notes:

1. Repetitive Rating: Pulse width limited by maximum junction temperature.
2. Surface Mounted on FR4 Board, $t \leq 10$ sec.
3. Pulse Test Pulse Width $\leq 300\mu s$, Duty Cycle $\leq 2\%$.
4. Guaranteed by design, not subject to production.

Typical Characteristics

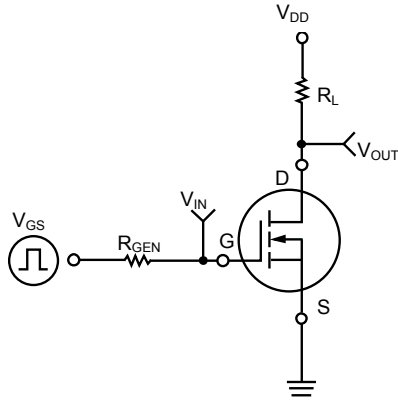


Figure 1. Switching Test Circuit

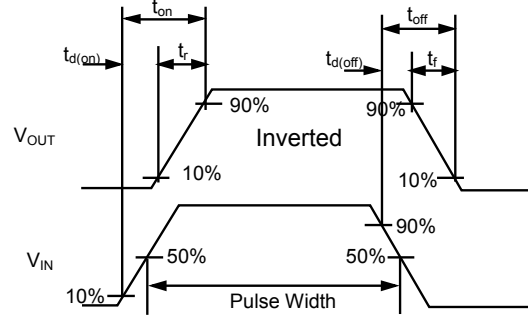


Figure 2. Switching Waveforms

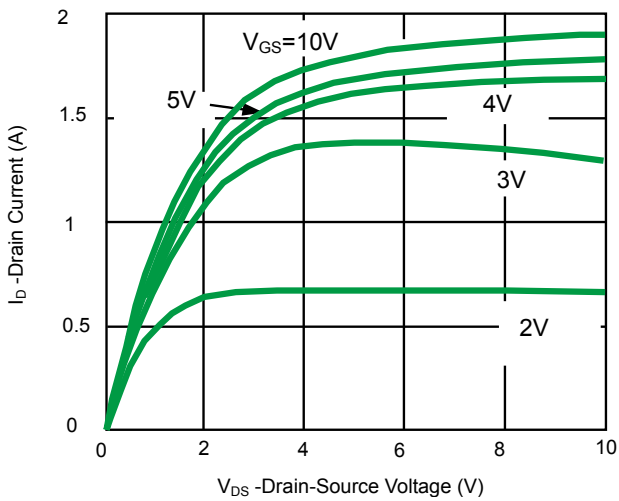


Fig 3. Output Characteristics

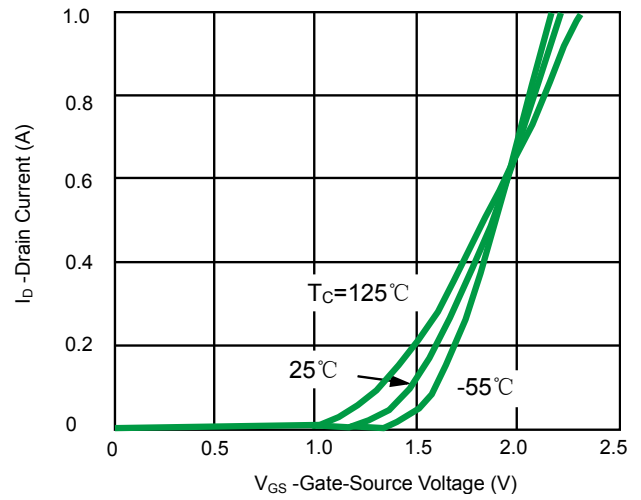


Fig 4. Transfer Characteristics

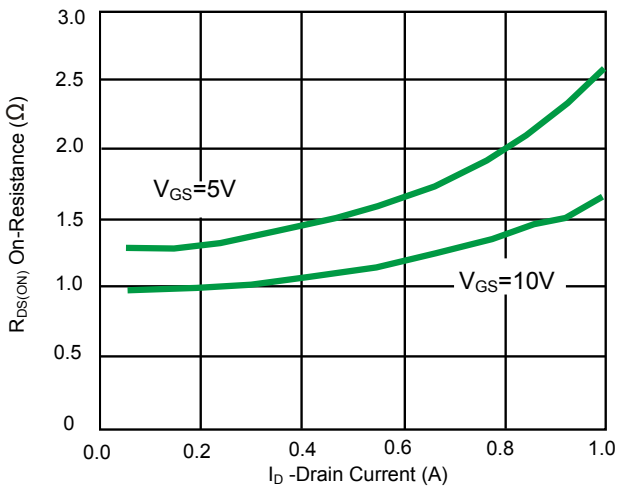


Fig 5. Drain-Source On-Resistance

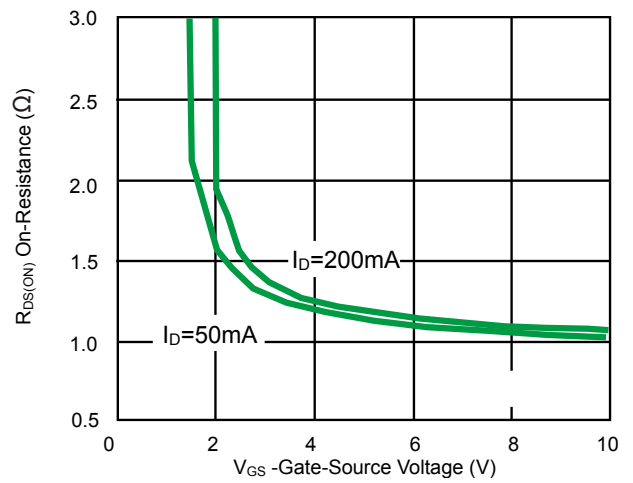


Fig 6. $R_{DS(ON)}$ vs V_{GS}

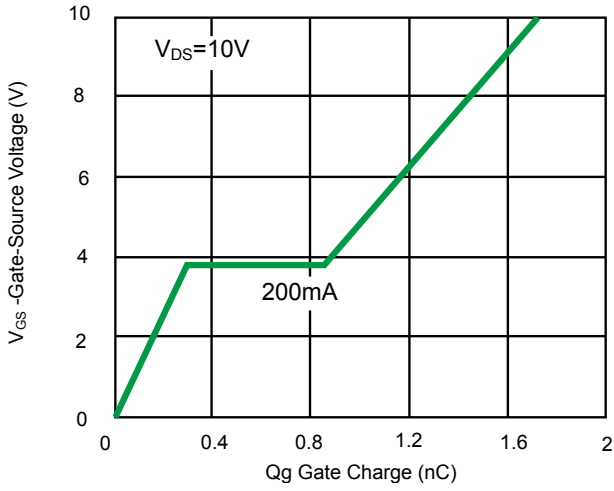


Fig 7. Gate Charge

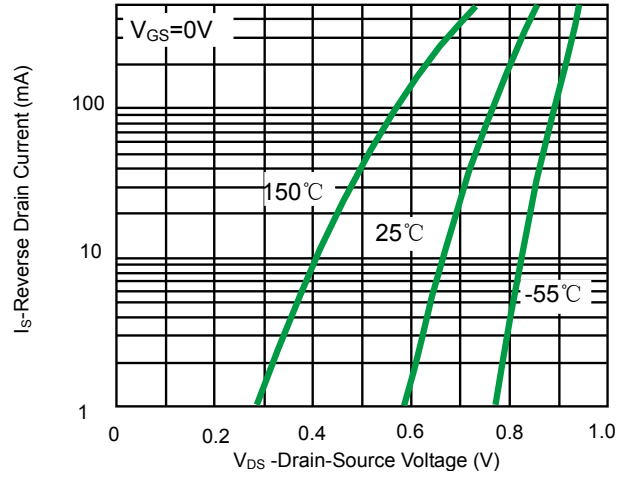


Fig 8. Source-Drain Diode Forward

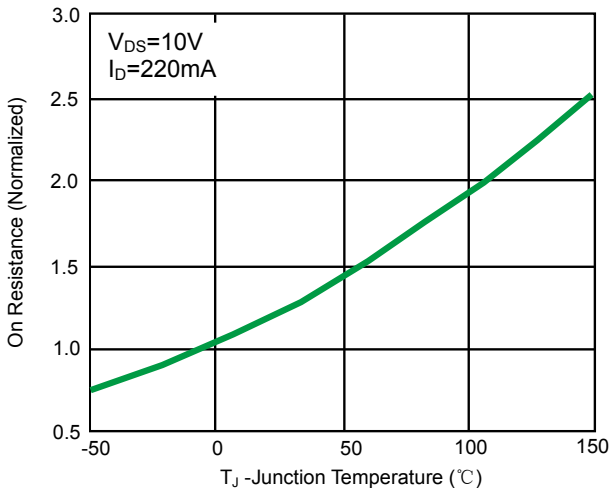


Fig 9. Drain-Source On-Resistance

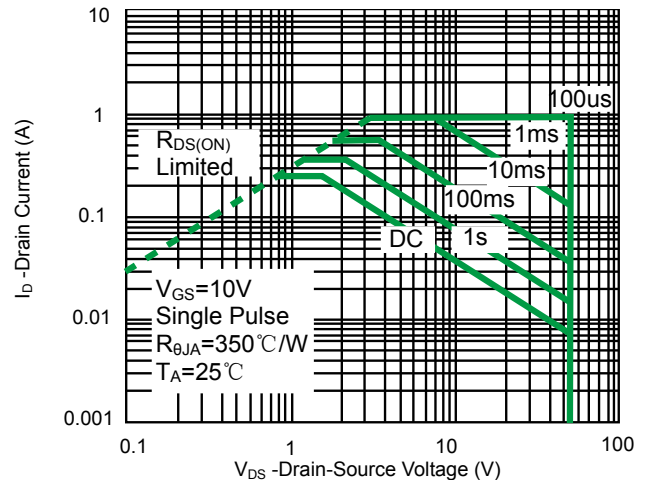


Fig 10. Safe Operation Area

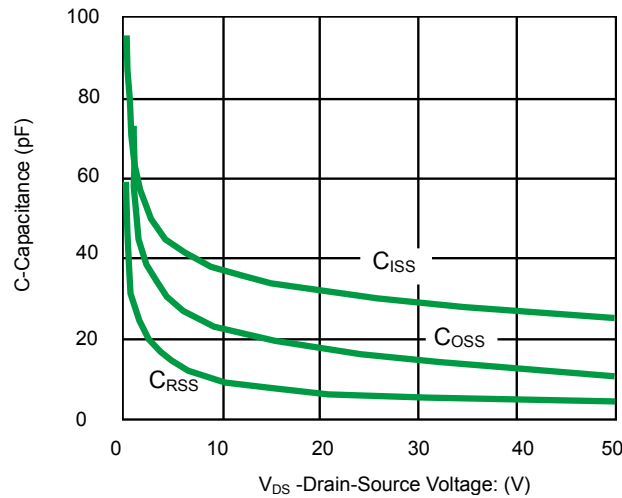


Figure 11. Capacitance vs. V_{DS}

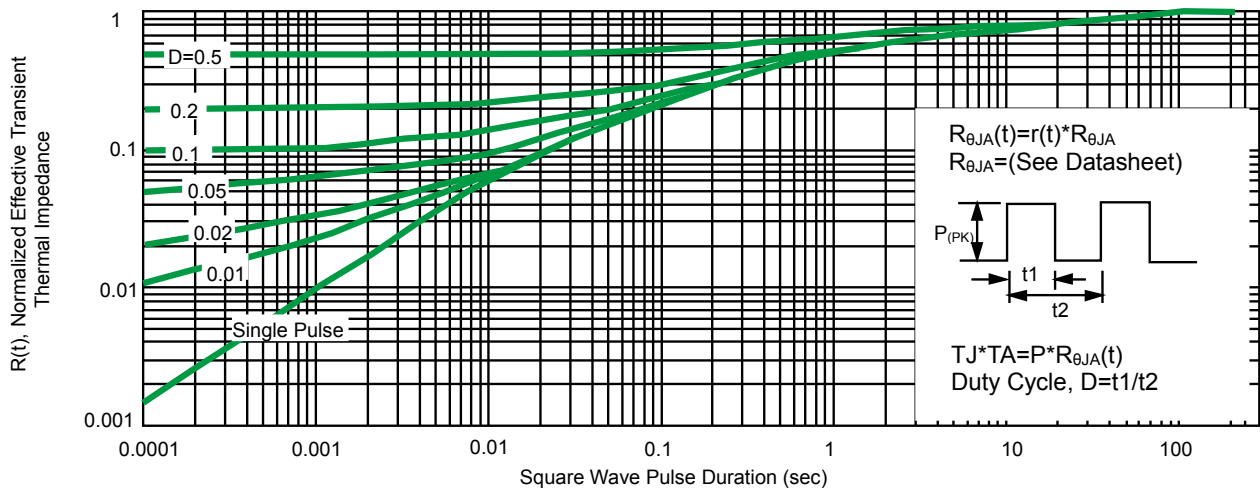
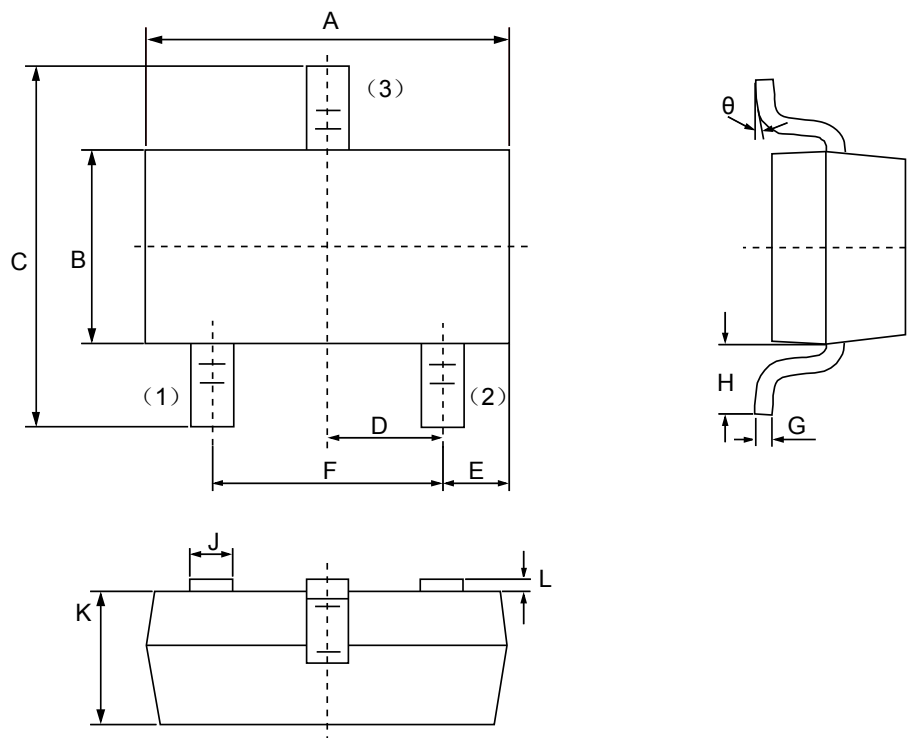



Fig 12. Normalized Maximum Transient Thermal Impedance

Product dimension(SOT-23)



Dim	Millimeters		Inches	
	MIN	MAX	MIN	MAX
A	2.80	3.00	0.1102	0.1197
B	1.20	1.40	0.0472	0.0551
C	2.10	2.50	0.0830	0.0984
D	0.89	1.02	0.0350	0.0401
E	0.45	0.60	0.0177	0.0236
F	1.78	2.04	0.0701	0.0807
G	0.085	0.177	0.0034	0.0070
H	0.45	0.60	0.0180	0.0236
J	0.37	0.50	0.0150	0.0200
K	0.89	1.11	0.0350	0.0440
L	0.013	0.100	0.0005	0.0040
θ	0°	10°	0°	10°


IMPORTANT NOTICE

 and **Prisemi**[®] are registered trademarks of **Prisemi Electronics Co., Ltd (Prisemi)** ,Prisemi reserves the right to make changes without further notice to any products herein. Prisemi makes no warranty, representation or guarantee regarding the suitability of its products for any particular purpose, nor does Prisemi assume any liability arising out of the application or use of any product or circuit, and specifically disclaims any and all liability, including without limitation special, consequential or incidental damages. “Typical” parameters which may be provided in Prisemi data sheets and/or specifications can and do vary in different applications and actual performance may vary over time. All operating parameters, including “Typicals” must be validated for each customer application by customer’s technical experts. Prisemi does not convey any license under its patent rights nor the rights of others. The products listed in this document are designed to be used with ordinary electronic equipment or devices, Should you intend to use these products with equipment or devices which require an extremely high level of reliability and the malfunction of with would directly endanger human life (such as medical instruments, aerospace machinery, nuclear-reactor controllers, fuel controllers and other safety devices), please be sure to consult with our sales representative in advance.

Website: <http://www.prisemi.com>

For additional information, please contact your local Sales Representative.

©Copyright 2009, Prisemi Electronics

 **Prisemi**[®] is a registered trademark of Prisemi Electronics.

All rights are reserved.