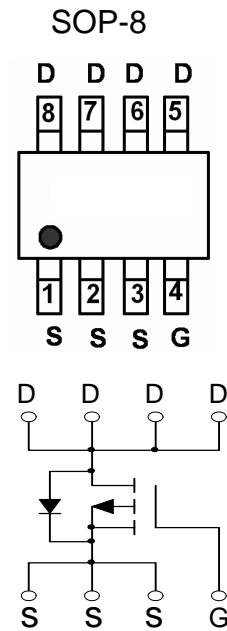


General Features

- $V_{DS} = -30V, I_D = -12A$
- $R_{DS(ON)} < 30m\Omega @ V_{GS} = -5V$
- $R_{DS(ON)} < 14m\Omega @ V_{GS} = -10V$

Application

- PWM applications
- Load switch
- Power management



Absolute Maximum Ratings ($T_A = 25^\circ C$ unless otherwise noted)

Parameter	Symbol	Limit	Unit
Drain-Source Voltage	V_{DS}	-30	V
Gate-Source Voltage	V_{GS}	± 20	V
Drain Current-Continuous	I_D	-12	A
Drain Current-Pulsed ^(Note 1)	I_{DM}	-48	A
Maximum Power Dissipation	P_D	3	W
Operating Junction and Storage Temperature Range	T_J, T_{STG}	-55 To 150	$^\circ C$

Thermal Characteristic

Thermal Resistance, Junction-to-Ambient ^(Note 2)	$R_{\theta JA}$	41.67	$^\circ C/W$
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Electrical Characteristics ($T_A = 25^\circ C$ unless otherwise noted)

Parameter	Symbol	Condition	Min	Typ	Max	Unit
Off Characteristics						

30V P-Channel Enhancement Mode Power MOSFET

Parameter	Symbol	Condition	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	BV_{DSS}	$V_{GS}=0V, I_D=-250\mu A$	-30	-	-	V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=-30V, V_{GS}=0V$	-	-	-1	μA
Gate-Body Leakage Current	I_{GSS}	$V_{GS}=\pm 20V, V_{DS}=0V$	-	-	± 100	nA
On Characteristics ^(Note 3)						
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=-250\mu A$	-1	-1.6	-3	V
Drain-Source On-State Resistance	$R_{DS(ON)}$	$V_{GS}=-10V, I_D=-12A$	-	11.5	14	m Ω
		$V_{GS}=-5V, I_D=-7A$	-	18	30	m Ω
Forward Transconductance	g_{FS}	$V_{DS}=-10V, I_D=-10A$	-	26	-	S
Dynamic Characteristics ^(Note4)						
Input Capacitance	C_{iss}	$V_{DS}=-15V, V_{GS}=0V,$ $F=1.0MHz$	-	1750	-	PF
Output Capacitance	C_{oss}		-	215	-	PF
Reverse Transfer Capacitance	C_{rss}		-	180	-	PF
Switching Characteristics ^(Note 4)						
Turn-on Delay Time	$t_{d(on)}$	$V_{DD}=-15V, I_D=-10A,$ $V_{GS}=-10V, R_{GEN}=1\Omega$	-	9	-	nS
Turn-on Rise Time	t_r		-	8	-	nS
Turn-Off Delay Time	$t_{d(off)}$		-	28	-	nS
Turn-Off Fall Time	t_f		-	10	-	nS
Total Gate Charge	Q_g	$V_{DS}=-15V, I_D=-10A, V_{GS}=-10V$	-	24	-	nC
Gate-Source Charge	Q_{gs}		-	3.5	-	nC
Gate-Drain Charge	Q_{gd}		-	6	-	nC
Drain-Source Diode Characteristics						
Diode Forward Voltage ^(Note 3)	V_{SD}	$V_{GS}=0V, I_S=-2A$	-	-	-1.2	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 Electrical and Thermal Characteristics

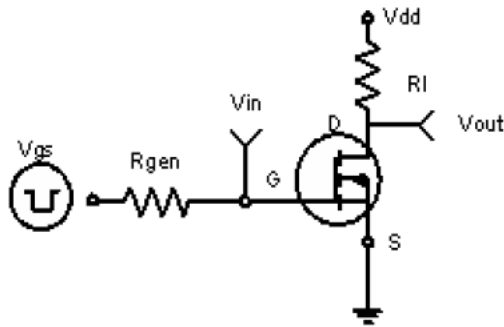


Figure 1: Switching Test Circuit

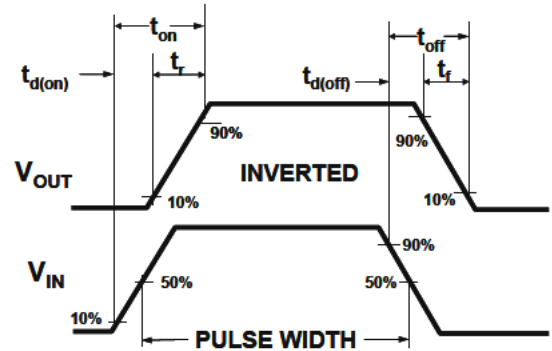


Figure 2: Switching Waveforms

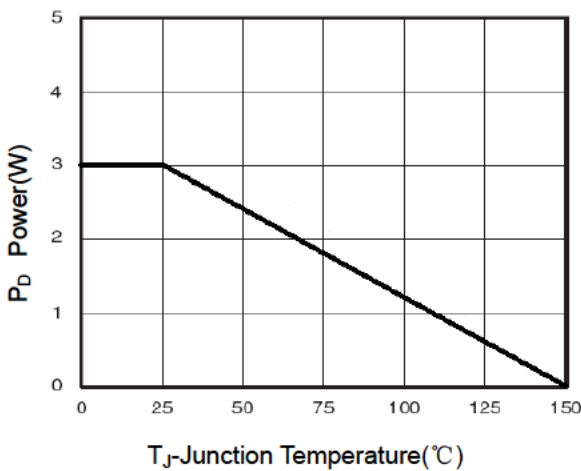


Figure 3 Power Dissipation

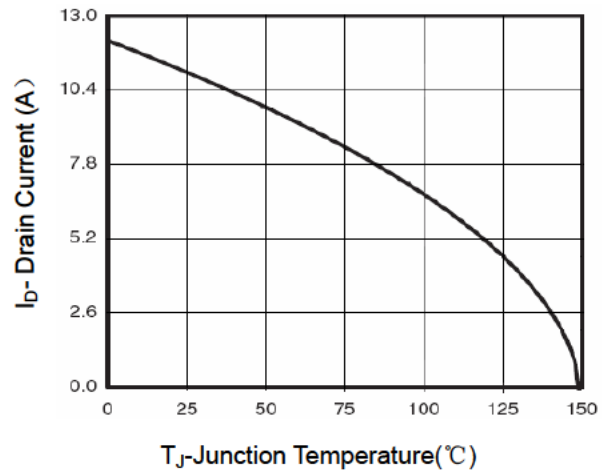


Figure 4 Drain Current

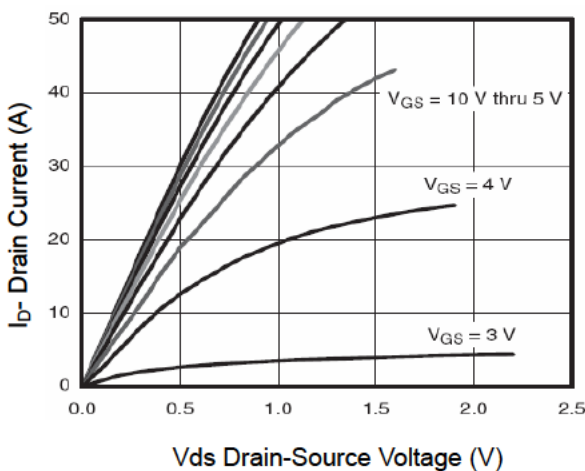


Figure 5 Output Characteristics

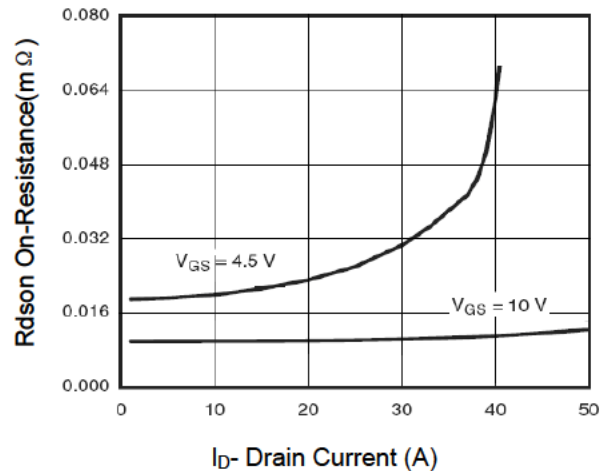


Figure 6 Drain-Source On-Resistance

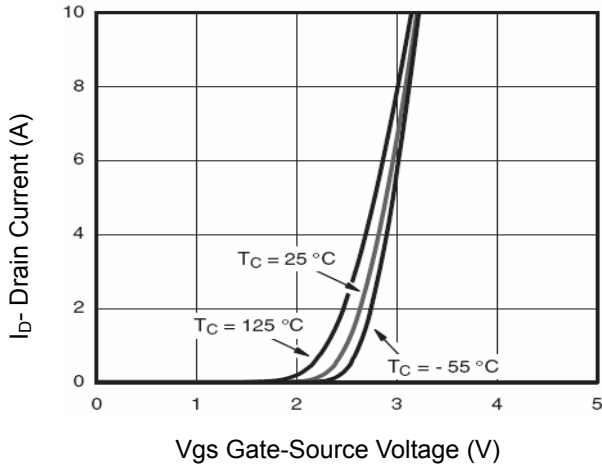


Figure 7 Transfer Characteristics

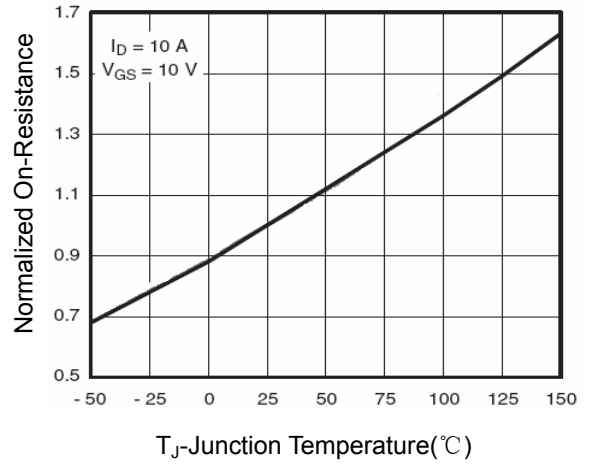


Figure 8 Drain-Source On-Resistance

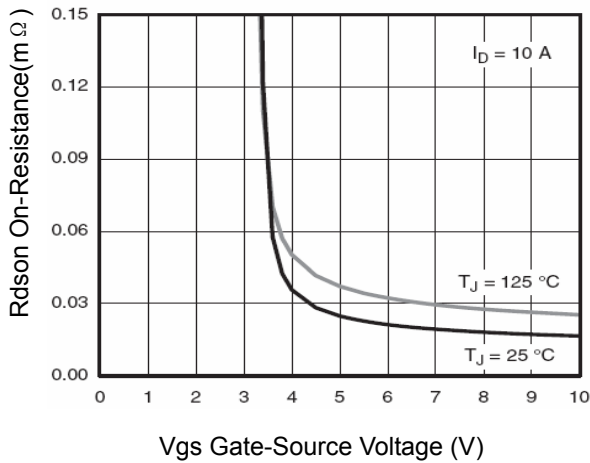


Figure 9 Rdson vs Vgs

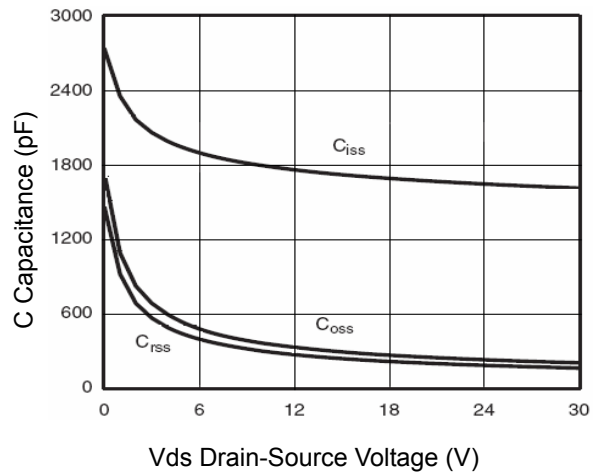


Figure 10 Capacitance vs Vds

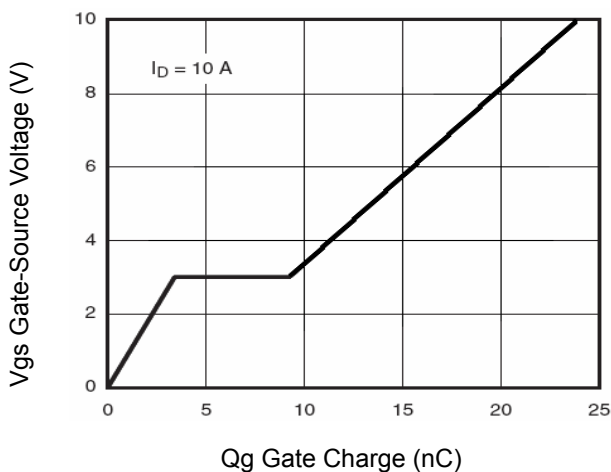


Figure 11 Gate Charge

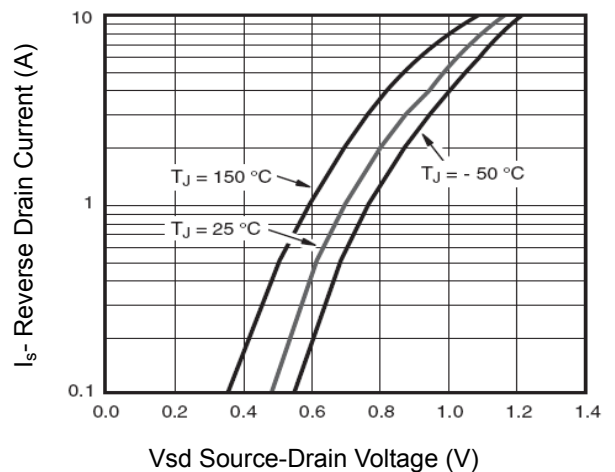


Figure 12 Source- Drain Diode Forward

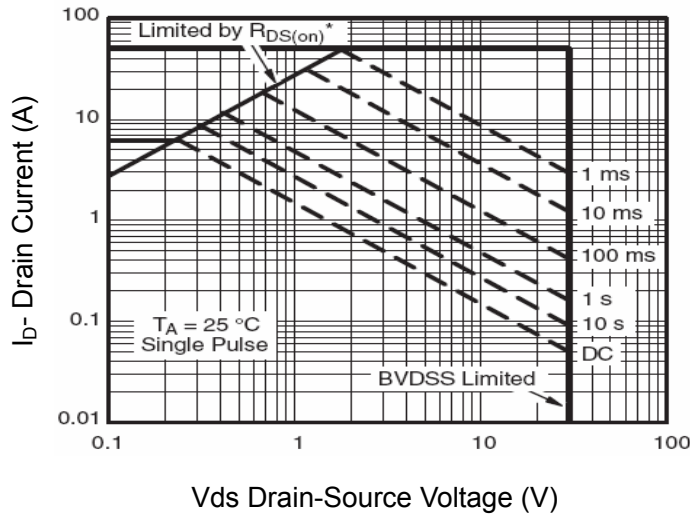


Figure 13 Safe Operation Area

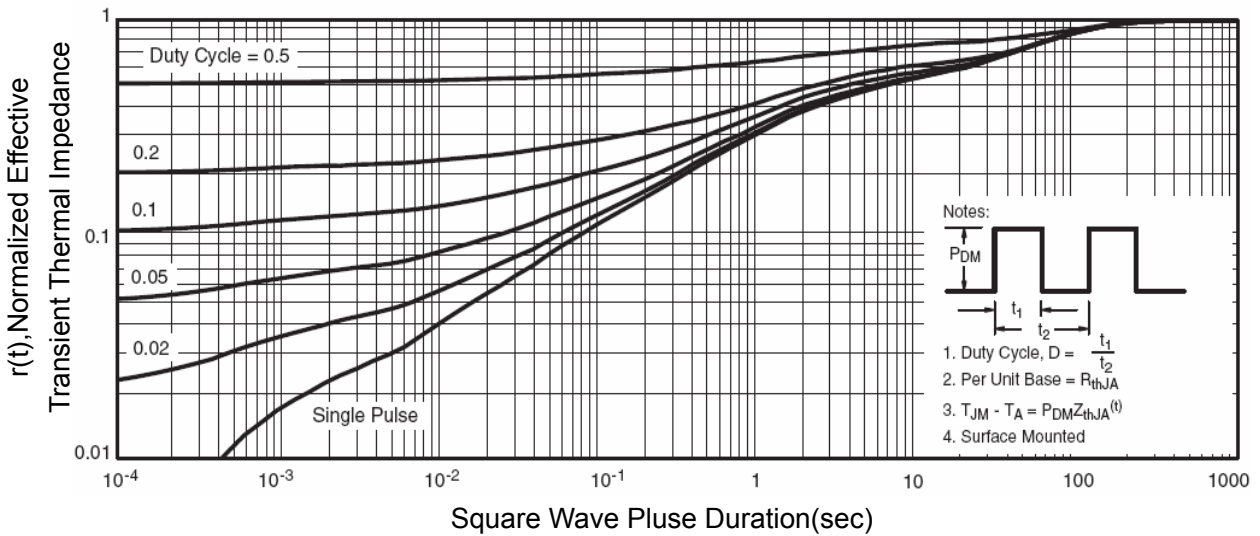


Figure 14 Normalized Maximum Transient Thermal Impedance