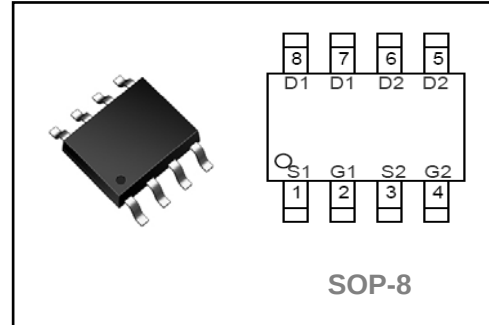


N- Channel and P-Channel Silicon MOSFETs

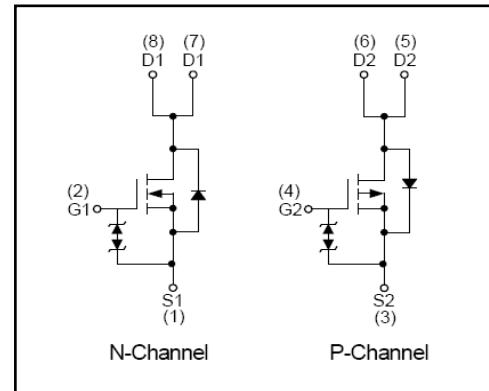
Features

- Low On resistance.
- Composite type with an N-channel MOSFET and a P-channel MOSFET driving from a 4.5V/-4.5V supply voltage contained in a single package.
- High-density mounting.
- Zener-Protected
- RoHS compliant.



Applications

- Ultrahigh Speed Switching,
- Motor Driver Applications



Absolute Maximum Ratings at Ta=250C

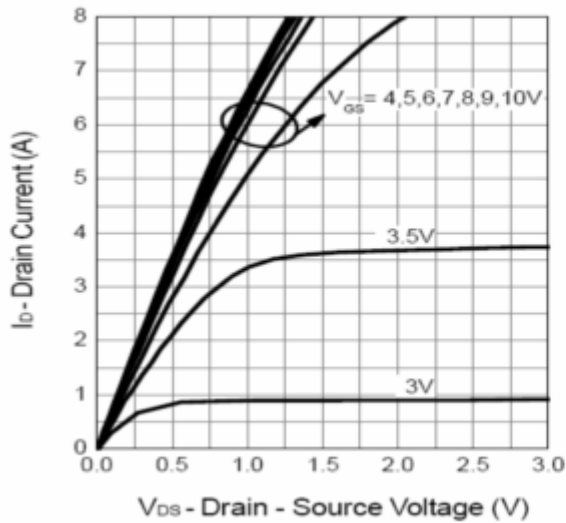
Parameter	Symbol	Conditions	Ratings		Unit
			N-Ch	P-Ch	
Drain-to-Source Voltage	V_{DSS}	Drain-Source Voltage	100	-100	V
Gate-to-Source Voltage	V_{GSS}	Gate-Source Voltage	± 20	± 20	V
Drain Current (DC)	I_D	Continuous Drain Current	2	-2	A
Drain Current (Pulse)	I_{DP}	$PW \leq 10\mu s$, duty cycle $\leq 1\%$	8	-8	A
Allowable Power Dissipation	P_D	Mounted on a ceramic board (1000mm ² ×0.8mm) 1unit	1.3		W
Total Dissipation	P_T	Mounted on a ceramic board (1000mm ² ×0.8mm)	1.7		W
Channel Temperature	T_{ch}	Maximum Junction Temperature	150		°C
Storage Temperature	T_{stg}	Storage Temperature Range	-55~+150		°C

N-Channel Electrical Characteristics at Ta=250C

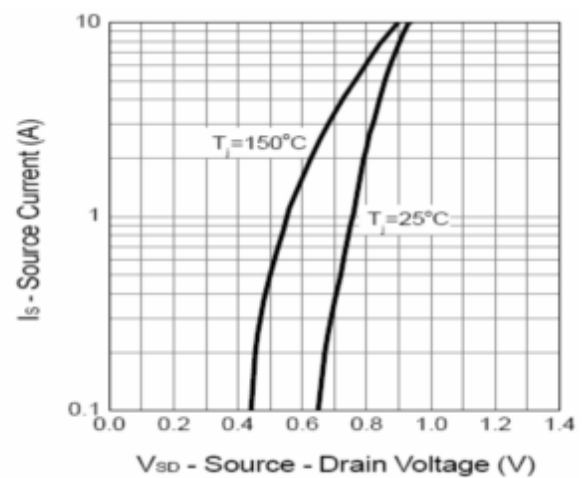
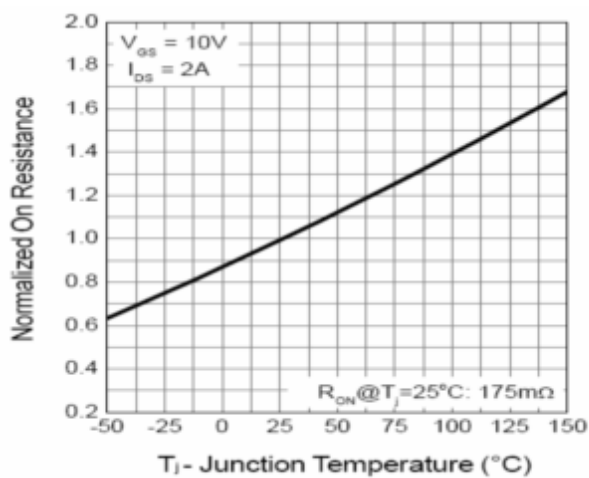
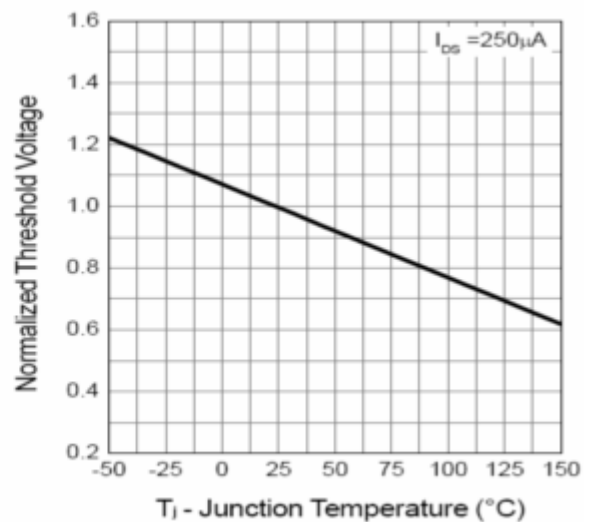
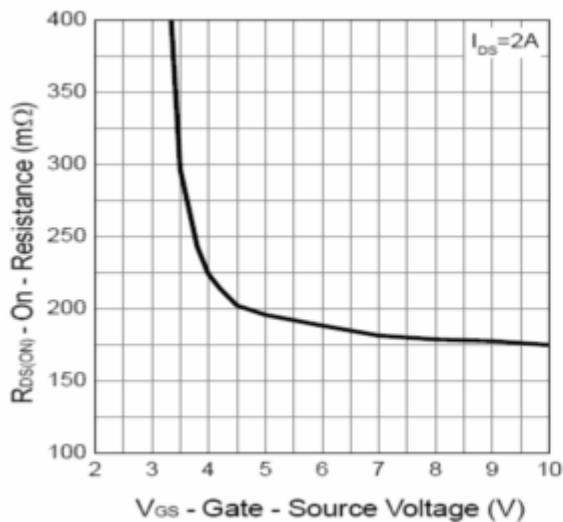
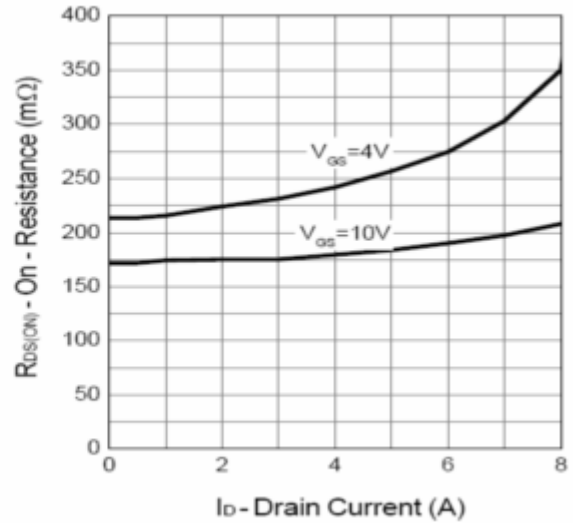
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Drain-to-Source Breakdown Voltage	$V_{(BR)DSS}$	$I_D=250\mu A, V_{GS}=0V$	100	-	-	V
Zero-Gate Voltage Drain Current	I_{DSS}	$V_{DS}=80V, V_{GS}=0V$	-	-	1	μA
Gate-to-Source Leakage Current	I_{GSS}	$V_{GS}=\pm 16V, V_{DS}=0V$	-	-	± 10	nA
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	1.2	1.8	2.6	V
Static Drain-to-Source On-State Resistance	$R_{DS(on)}$	$I_D=2A, V_{GS}=10V$	-	175	220	m Ω
	$R_{DS(on)}$	$I_D=1.5A, V_{GS}=4V$	-	220	310	m Ω
Input Capacitance	C_{iss}	$V_{DS}=30V,$ $V_{GS}=0V,$ $f=1MHz$	-	470	-	pF
Output Capacitance	C_{oss}		-	40	-	
Reverse Transfer Capacitance	C_{rss}		-	25	-	
Turn-on Delay Time	$t_{d(on)}$	$V_{GEN}=10V,$ $V_{DS}=30V,$ $R_L=30\Omega, I_D=1A,$ $R_{GEN}=6\Omega$	-	6	12	nS
Rise Time	t_r		-	8	15	
Turn-off Delay Time	$t_{d(off)}$		-	25	46	
Fall Time	t_f		-	20	37	
Total Gate Charge	Q_g	N-Channel $V_{DS}=50V, V_{GS}=10V,$ $I_D=2A$	-	12	17	nC
Gate-to-Source Charge	Q_{gs}		-	1.8	-	
Gate-to-Drain "Miller" Charge	Q_{gd}		-	1	-	
Diode Forward Voltage	V_{SD}	$I_S=2.5A, V_{GS}=0V$	-	0.75	1.3	V

N-Channel Typical Characteristics at $T_a=25^\circ\text{C}$

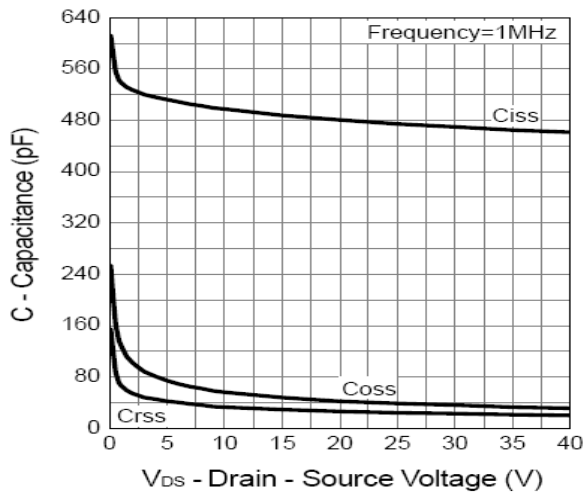
Output Characteristics



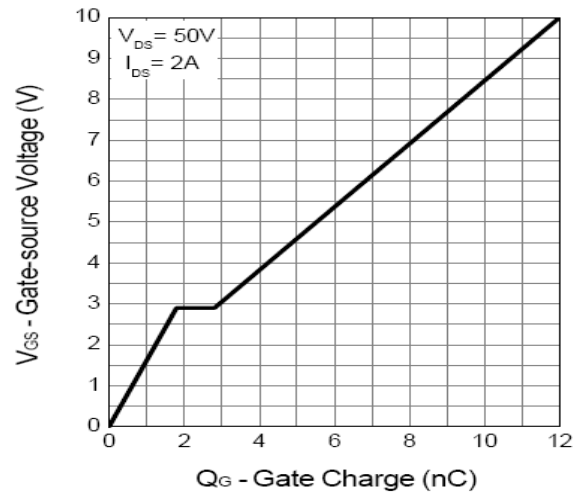
Drain-Source On Resistance



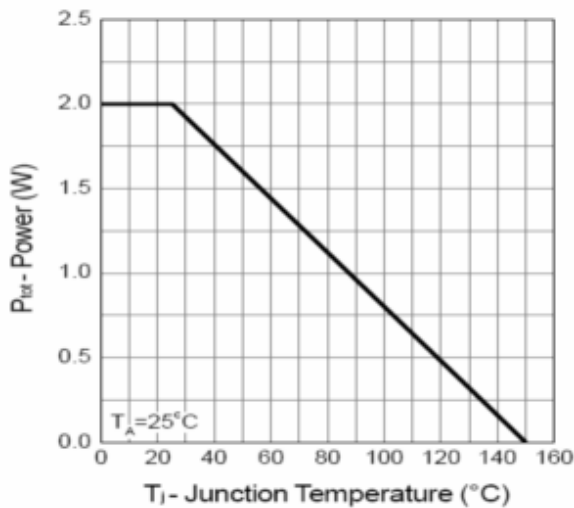
Capacitance



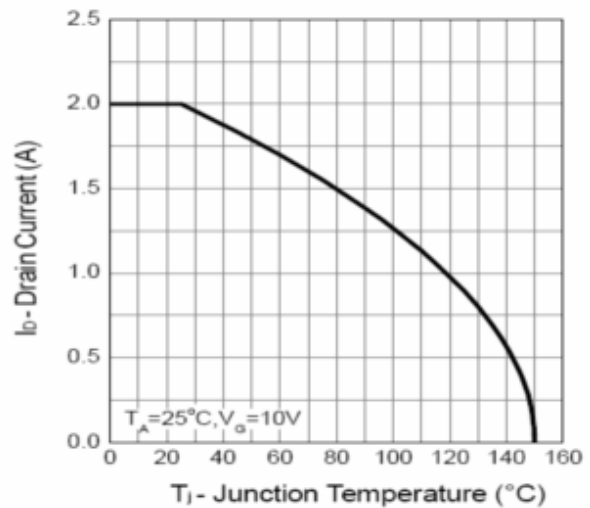
Gate Charge



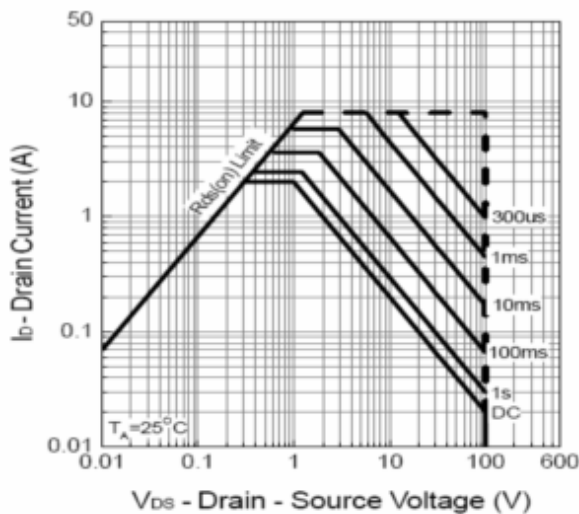
Power Dissipation



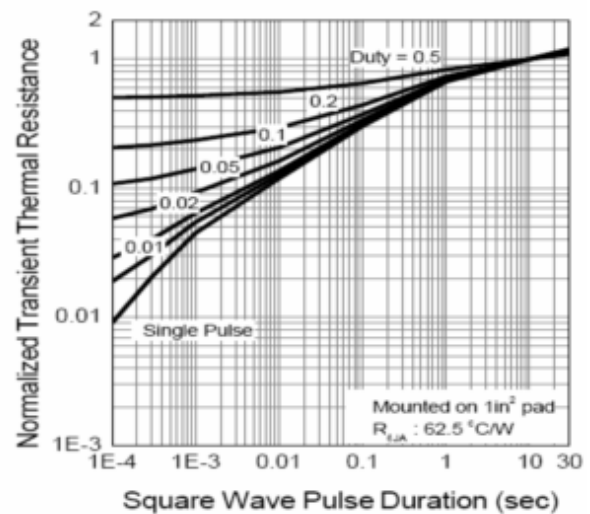
Drain Current



Safe Operation Area



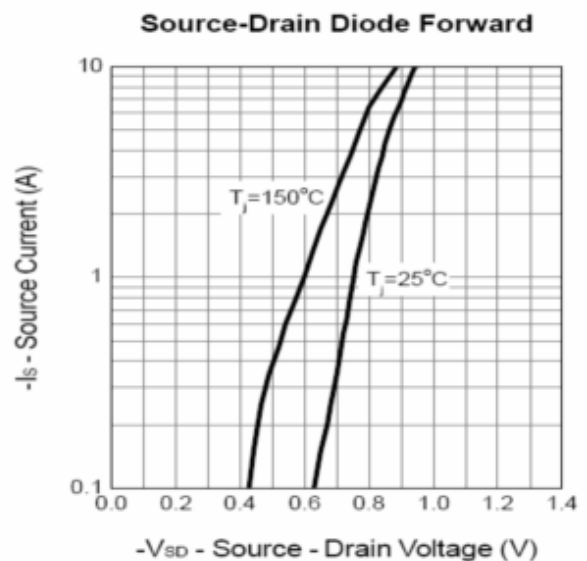
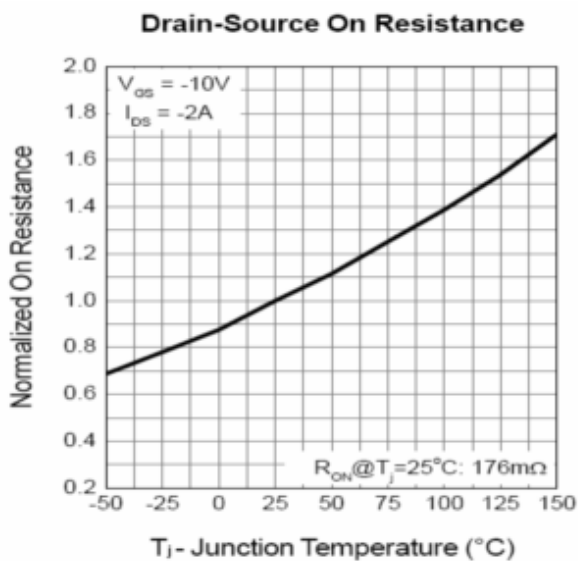
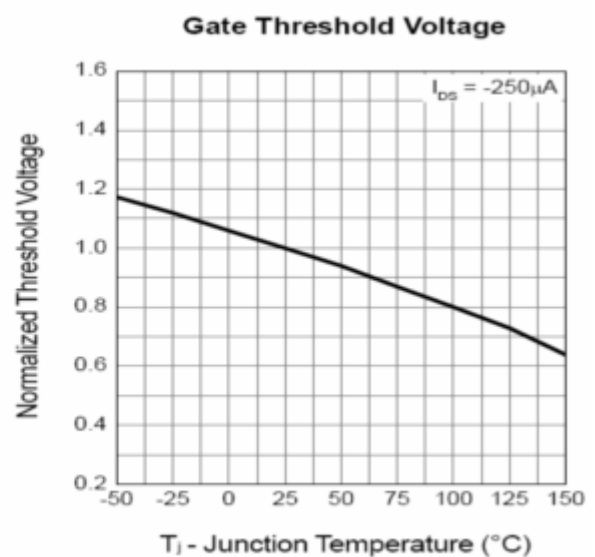
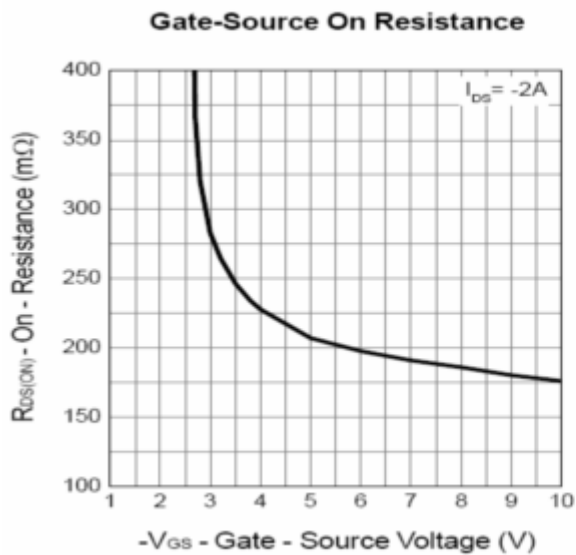
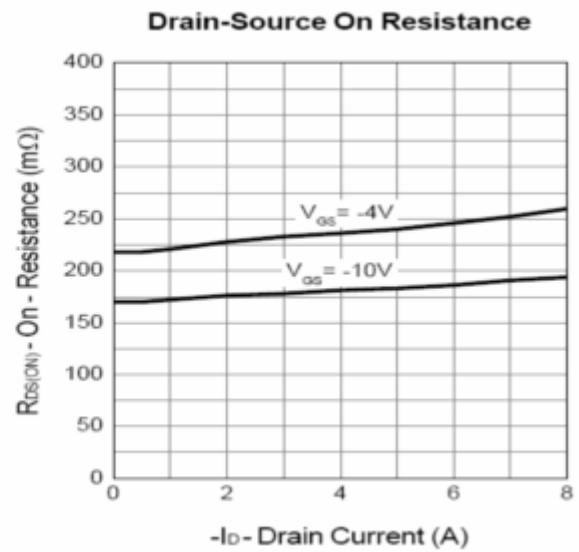
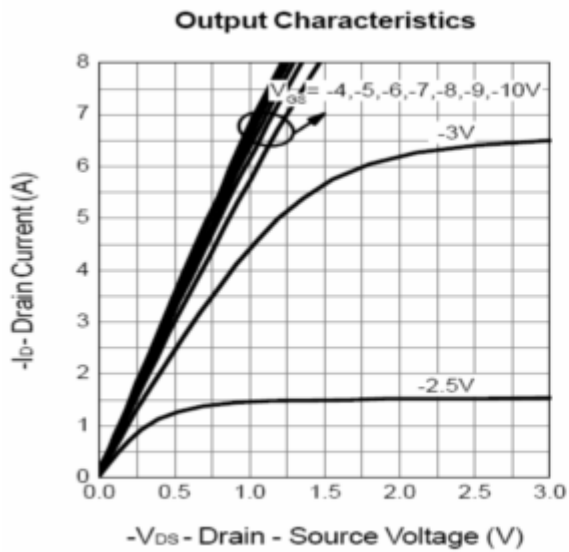
Thermal Transient Impedance



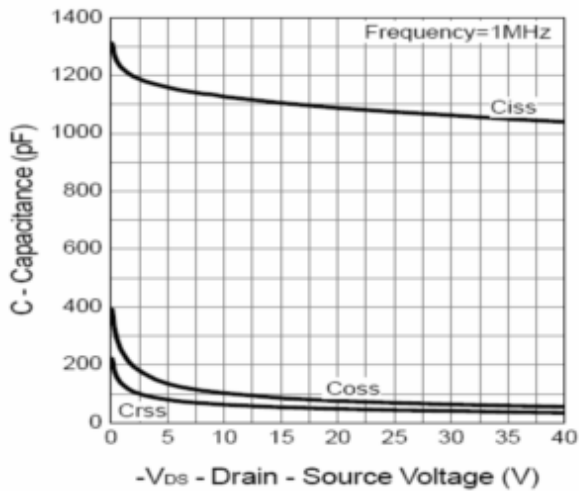
P-Channel Electrical Characteristics at $T_a=25^{\circ}\text{C}$

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Drain-to-Source Breakdown Voltage	$V_{(BR)DSS}$	$I_D=-250\mu\text{A}$, $V_{GS}=0\text{V}$	-100	-	-	V
Zero-Gate Voltage Drain Current	I_{DSS}	$V_{DS}=-80\text{V}$, $V_{GS}=0\text{V}$	-	-	-1	μA
Gate-to-Source Leakage Current	I_{GSS}	$V_{GS}=\pm 16\text{V}$, $V_{DS}=0\text{V}$	-	-	± 10	nA
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}$, $I_D=-250\mu\text{A}$	-1.2	-1.8	-2.6	V
Static Drain-to-Source On-State Resistance	$R_{DS(ON)}$	$I_D=-2\text{A}$, $V_{GS}=-10\text{V}$	-	176	225	$\text{m}\Omega$
	$R_{DS(ON)}$	$I_D=-1.5\text{A}$, $V_{GS}=-4\text{V}$	-	225	315	$\text{m}\Omega$
Input Capacitance	C_{iss}	$V_{DS}=-30\text{V}$,	-	1050	-	pF
Output Capacitance	C_{oss}	$V_{GS}=0\text{V}$,	-	70	-	
Reverse Transfer Capacitance	C_{rss}	$f=1\text{MHz}$	-	40	-	
Turn-on Delay Time	$t_{d(on)}$	$V_{GEN}=-10\text{V}$,	-	9	17	nS
Rise Time	t_r	$V_{DS}=-30\text{V}$,	-	10	19	
Turn-off Delay Time	$t_{d(off)}$	$R_L=30\Omega$, $I_D=1\text{A}$,	-	81	147	
Fall Time	t_f	$R_{GEN}=6\Omega$	-	82	149	
Total Gate Charge	Q_g	$V_{DS}=-50\text{V}$,	-	21.3	30	nC
Gate-to-Source Charge	Q_{gs}	$V_{GS}=-10\text{V}$,	-	3.2	-	
Gate-to-Drain "Miller" Charge	Q_{gd}	$I_D=-2\text{A}$	-	4.5	-	
Diode Forward Voltage	V_{SD}	$I_S=-2.5\text{A}$, $V_{GS}=0\text{V}$	-	-0.75	-1.3	V

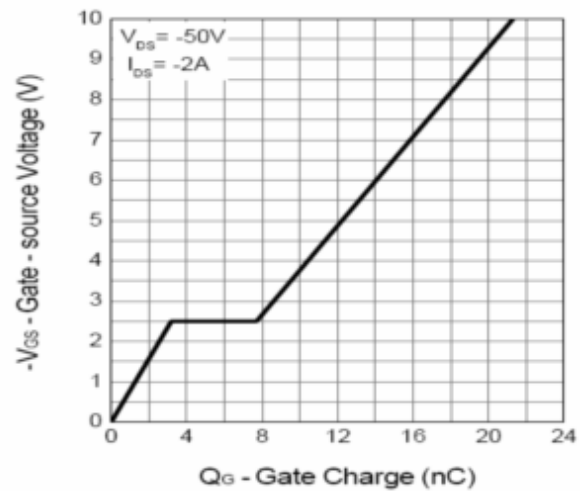
P-Channel Typical Characteristics at $T_a=25^{\circ}\text{C}$



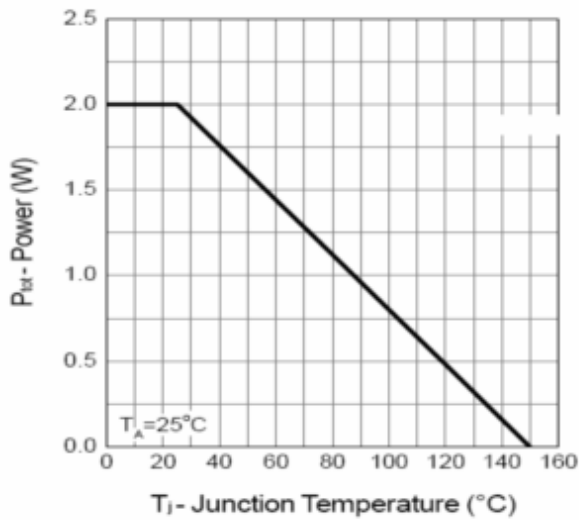
Capacitance



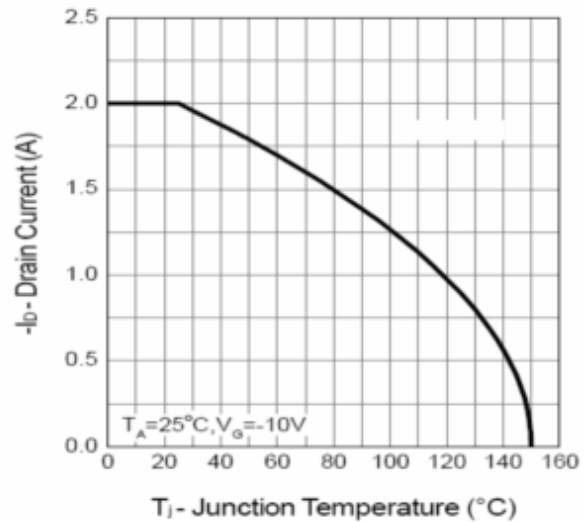
Gate Charge



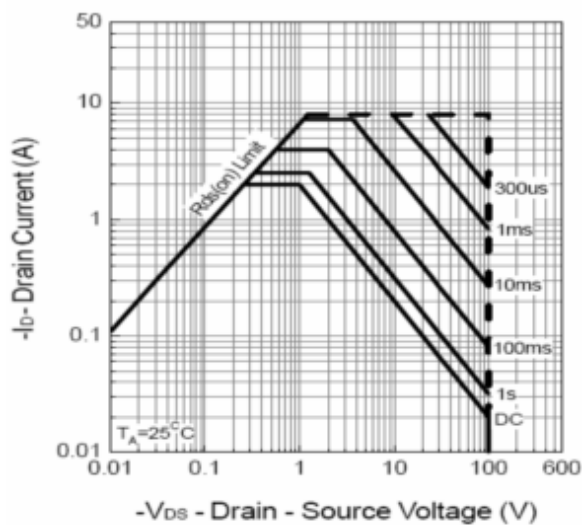
Power Dissipation



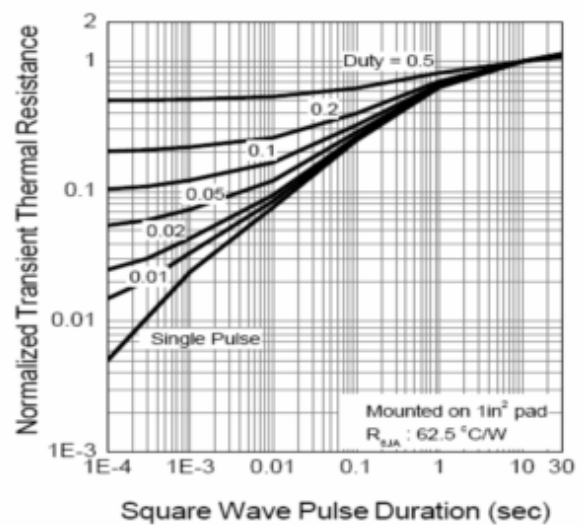
Drain Current



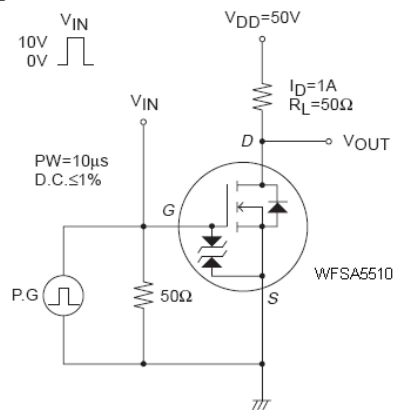
Safe Operation Area



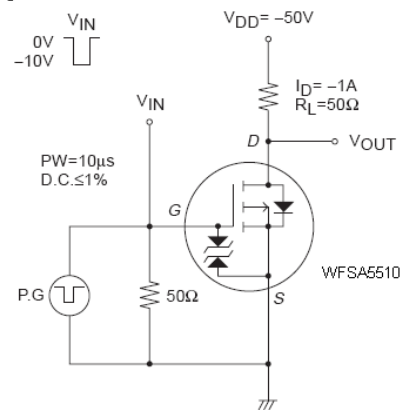
Thermal Transient Impedance



[N-channel]



[P-channel]



Switching Time Test Circuit

SOP8 Package Dimension

Unit:mm

