

این دیتاشیت توسط توکل الکترونیک تهیه و ارائه شده است.
جهت مشاهده قیمت، موجودی و ثبت سفارش این قطعه به وبسایت توکل الکترونیک مراجعه فرمایید.



مشاهده قیمت و خرید

برای خرید و مشاهده سایر محصولات کلیک کنید



NIKO-SEM

N- & P-Channel Enhancement Mode
Field Effect Transistor

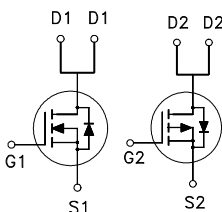
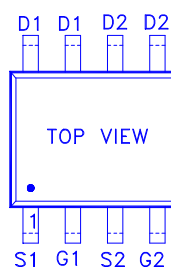
P2103NVG

SOP-8

Halogen-Free & Lead-Free

PRODUCT SUMMARY

	$V_{(BR)DSS}$	$R_{DS(ON)}$	I_D
N-Channel	30	21m Ω	8A
P-Channel	-30	34m Ω	-6A



G : GATE
D : DRAIN
S : SOURCE

ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$ Unless Otherwise Noted)

PARAMETERS/TEST CONDITIONS		SYMBOL	N-Channel	P-Channel	UNITS
Drain-Source Voltage		V_{DS}	30	-30	V
Gate-Source Voltage		V_{GS}	±20	±20	V
Continuous Drain Current	$T_A = 25\text{ }^{\circ}\text{C}$	I_D	8	-6	A
	$T_A = 70\text{ }^{\circ}\text{C}$		6	-5	
Pulsed Drain Current ¹		I_{DM}	36	-27	
Avalanche Current		I_{AS}	26	-27	
Avalanche Energy	L = 0.1mH	E_{AS}	35	38	mJ
Power Dissipation	$T_A = 25\text{ }^{\circ}\text{C}$	P_D	2		W
	$T_A = 70\text{ }^{\circ}\text{C}$		1.3		
Junction & Storage Temperature Range		T_j, T_{stg}	-55 to 150		$^{\circ}\text{C}$

THERMAL RESISTANCE RATINGS

THERMAL RESISTANCE	SYMBOL	TYPICAL	MAXIMUM	UNITS
Junction-to-Ambient	$R_{\theta JA}$		62.5	$^\circ\text{C} / \text{W}$

¹Pulse width limited by maximum junction temperature.

ELECTRICAL CHARACTERISTICS ($T_J = 25^\circ\text{C}$, Unless Otherwise Noted)

PARAMETER	SYMBOL	TEST CONDITIONS	LIMITS			UNIT	
			MIN	TYP	MAX		
STATIC							
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = 250\mu A$	N-Ch	30			V
		$V_{GS} = 0V, I_D = -250\mu A$	P-Ch	-30			
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\mu A$	N-Ch	1	1.7	2.5	
		$V_{DS} = V_{GS}, I_D = -250\mu A$	P-Ch	-1	-1.6	-2.5	

Gate-Body Leakage	I_{GSS}	$V_{DS} = 0V, V_{GS} = \pm 20V$	N-Ch			± 100	nA
		$V_{DS} = 0V, V_{GS} = \pm 20V$	P-Ch			± 100	
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = 24V, V_{GS} = 0V$	N-Ch			1	μA
		$V_{DS} = -24V, V_{GS} = 0V$	P-Ch			-1	
		$V_{DS} = 20V, V_{GS} = 0V, T_J = 55^\circ C$	N-Ch			10	
		$V_{DS} = -20V, V_{GS} = 0V, T_J = 55^\circ C$	P-Ch			-10	
On-State Drain Current ¹	$I_{D(ON)}$	$V_{DS} = 5V, V_{GS} = 10V$	N-Ch	36			A
		$V_{DS} = -5V, V_{GS} = -10V$	P-Ch	-27			
Drain-Source On-State esistance ¹	$R_{DS(ON)}$	$V_{GS} = 4.5V, I_D = 6A$	N-Ch		19	31	m Ω
		$V_{GS} = -4.5V, I_D = -5A$	P-Ch		40	56	
		$V_{GS} = 10V, I_D = 7A$	N-Ch		14	21	
		$V_{GS} = -10V, I_D = -6A$	P-Ch		28	34	
Forward Transconductance ¹	g_{fs}	$V_{DS} = 10V, I_D = 5A$	N-Ch		14		S
		$V_{DS} = -10V, I_D = -5A$	P-Ch		8		

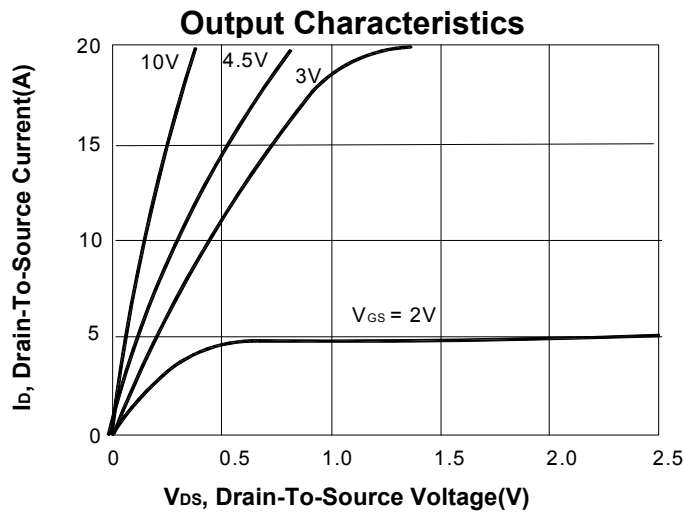
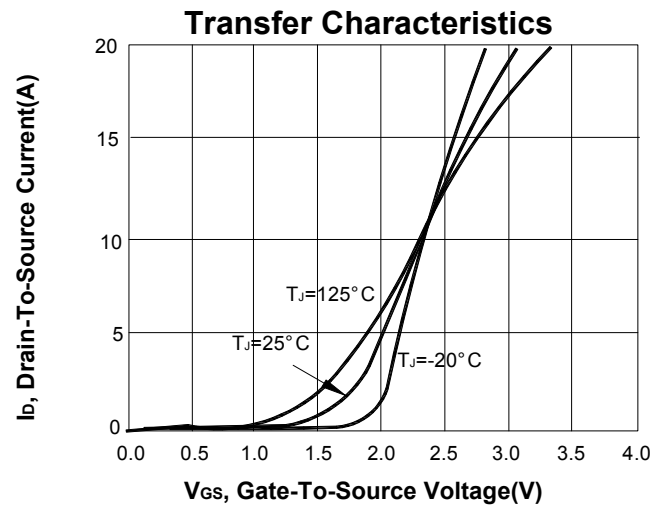
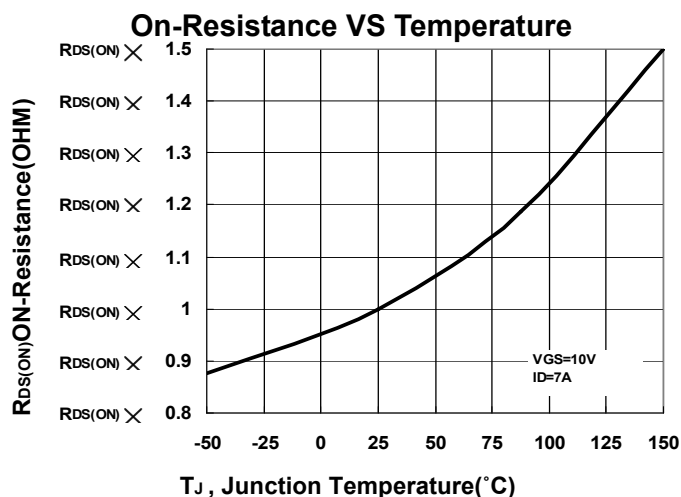
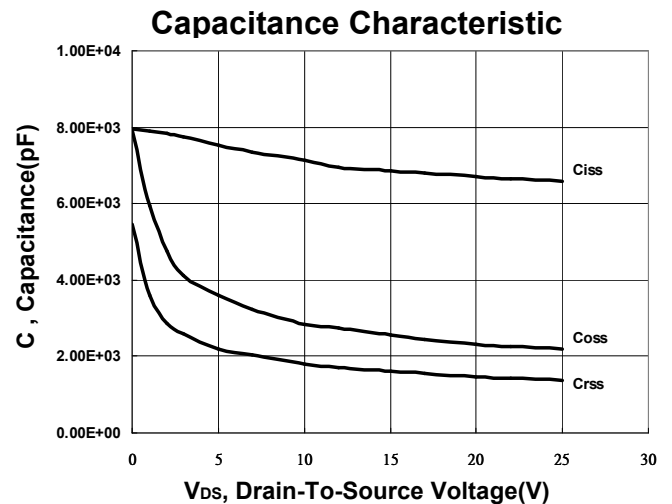
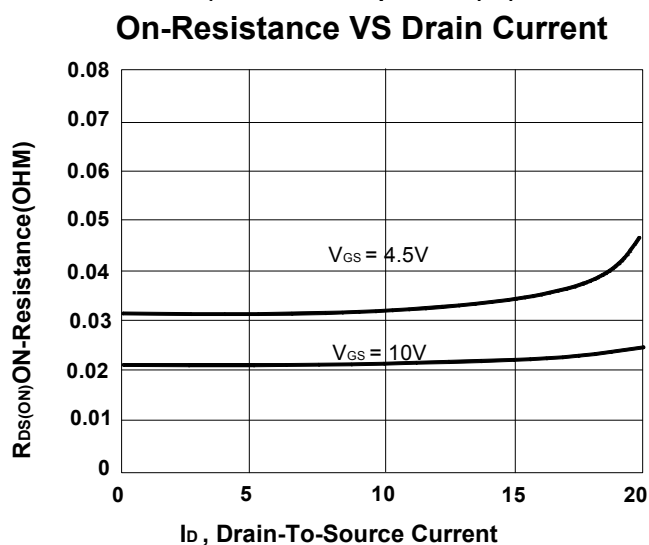
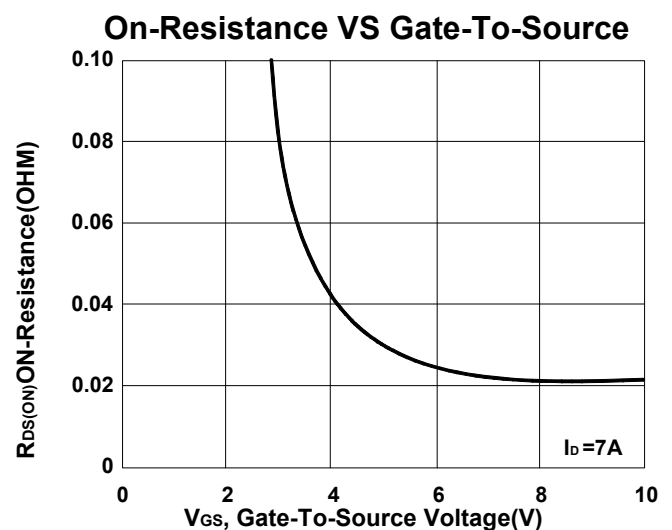
DYNAMIC							
Input Capacitance	C _{iss}	N-Channel V _{GS} = 0V, V _{DS} = 10V, f = 1MHz P-Channel V _{GS} = 0V, V _{DS} = -10V, f = 1MHz	N-Ch		659		pF
			P-Ch		983		
Output Capacitance	C _{oss}		N-Ch		218		
			P-Ch		216		
Reverse Transfer Capacitance	C _{rss}		N-Ch		138		
			P-Ch		157		
Total Gate Charge ²	Q _g	N-Channel V _{DS} = 0.5V _{(BR)DSS} , V _{GS} = 10V, I _D = 7A P-Channel V _{DS} = 0.5V _{(BR)DSS} , V _{GS} = -10V, I _D = -6A	N-Ch		16		nC
			P-Ch		21		
Gate-Source Charge ²	Q _{gs}		N-Ch		2		
			P-Ch		3		
Gate-Drain Charge ²	Q _{gd}		N-Ch		5		
			P-Ch		4		

Turn-On Delay Time ²	$t_{d(on)}$	N-Channel	N-Ch		9		
			P-Ch		10		
Rise Time ²	t_r	$V_{DS} = 15V$ $I_D \cong 1A, V_{GS} = 10V, R_{GEN} = 6\Omega$	N-Ch		11		
			P-Ch		15		
Turn-Off Delay Time ²	$t_{d(off)}$	P-Channel	N-Ch		18		
			P-Ch		68		nS
Fall Time ²	t_f	$V_{DS} = -15V,$ $I_D \cong -1A, V_{GS} = -10V, R_{GEN} = 6\Omega$	N-Ch		20		
			P-Ch		34		
SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS ($T_J = 25^\circ C$)							
Continuous Current	I_S		N-Ch			2	A
			P-Ch			-2	
Forward Voltage ¹	V_{SD}	$I_F = 5A, V_{GS} = 0V$	N-Ch			1	V
		$I_F = -5A, V_{GS} = 0V$	P-Ch			-1	
Reverse Recovery Time	t_{rr}	$I_F = 5A, di_F/dt = 100A / \mu S$	N-Ch		15.5		
		$I_F = -5A, di_F/dt = 100A / \mu S$	P-Ch		15.5		nS
Reverse Recovery Charge	Q_{rr}		N-Ch		7.9		
			P-Ch		7.9		nC

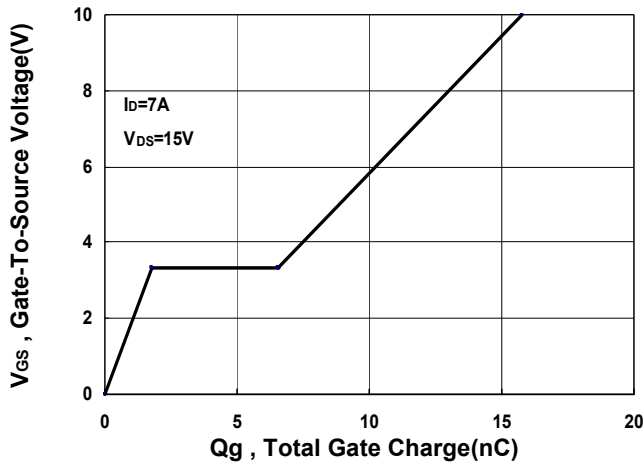
¹Pulse test : Pulse Width $\leq 300 \mu sec$, Duty Cycle $\leq 2\%$.

²Independent of operating temperature.

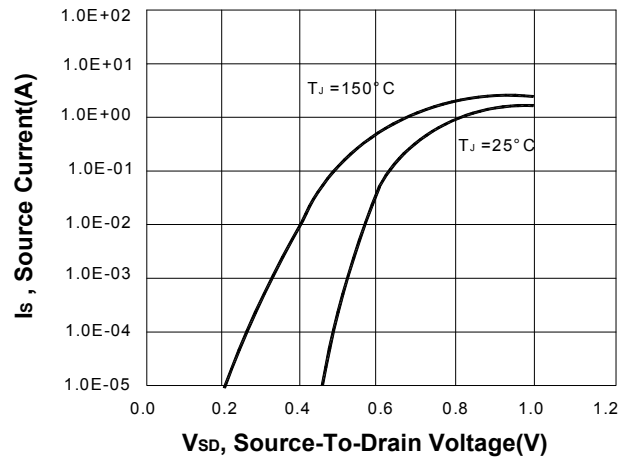
TYPICAL PERFORMANCE CHARACTERISTICS N-CHANNEL



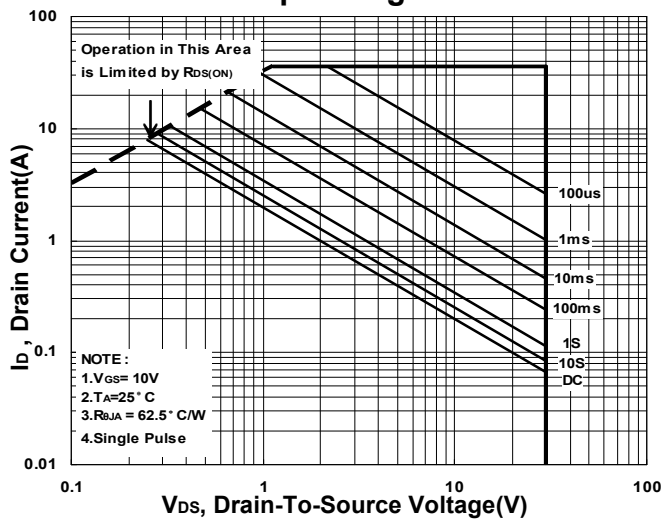
Gate charge Characteristics



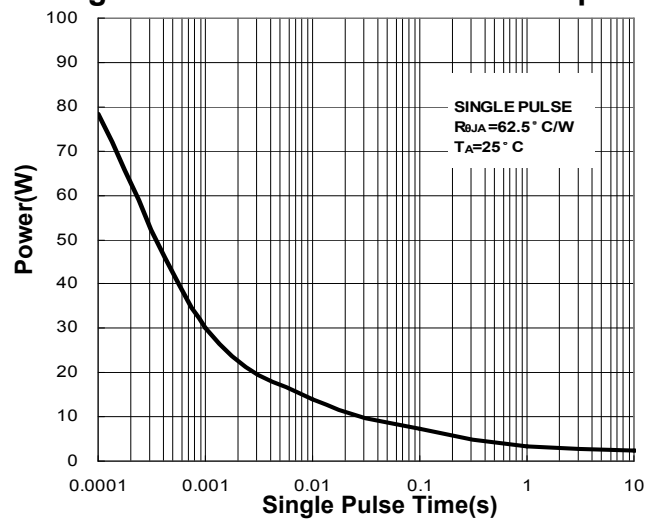
Source-Drain Diode Forward Voltage



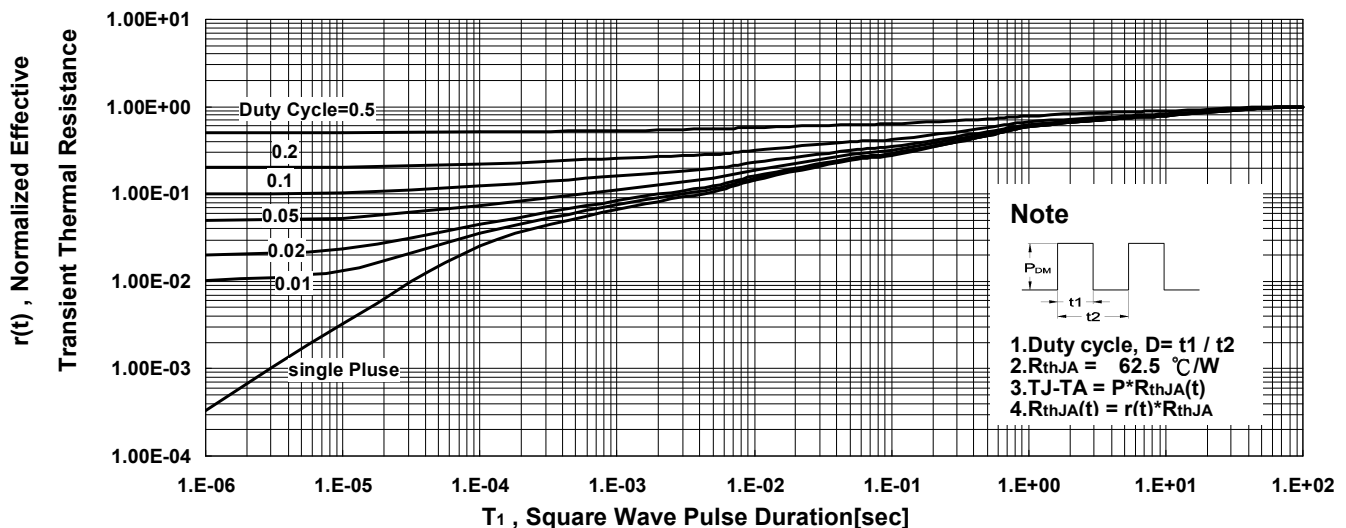
Safe Operating Area



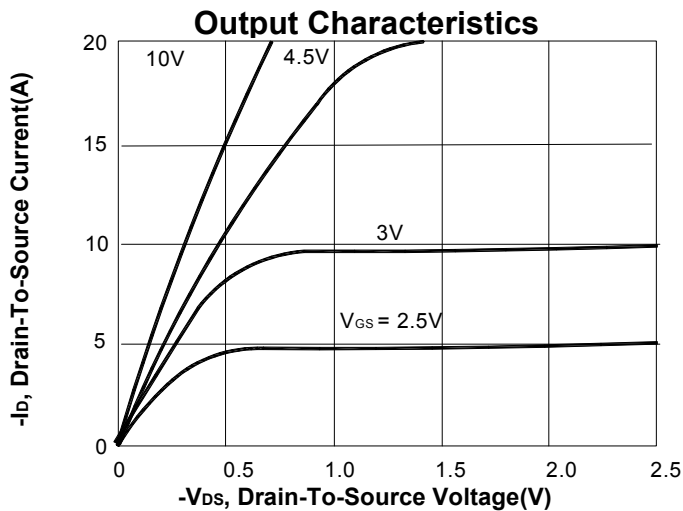
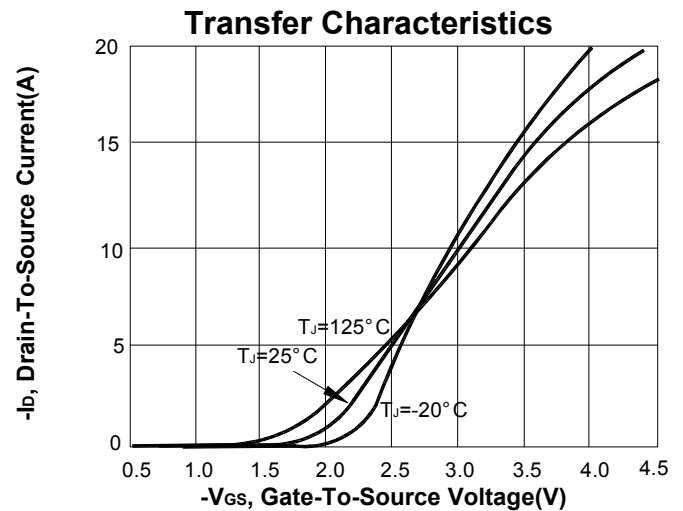
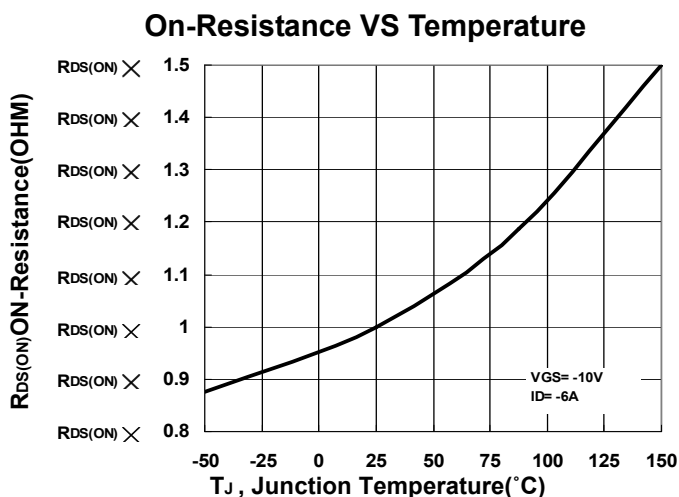
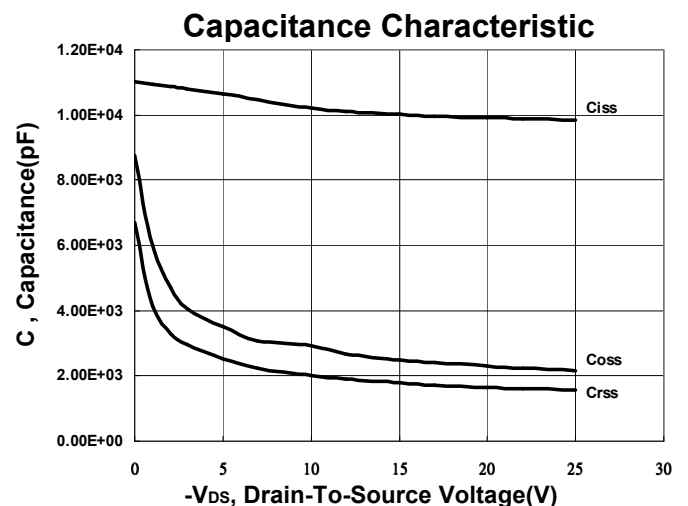
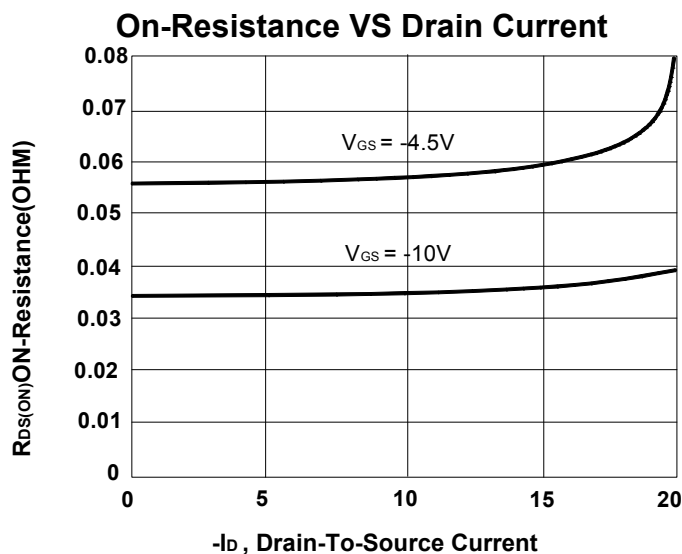
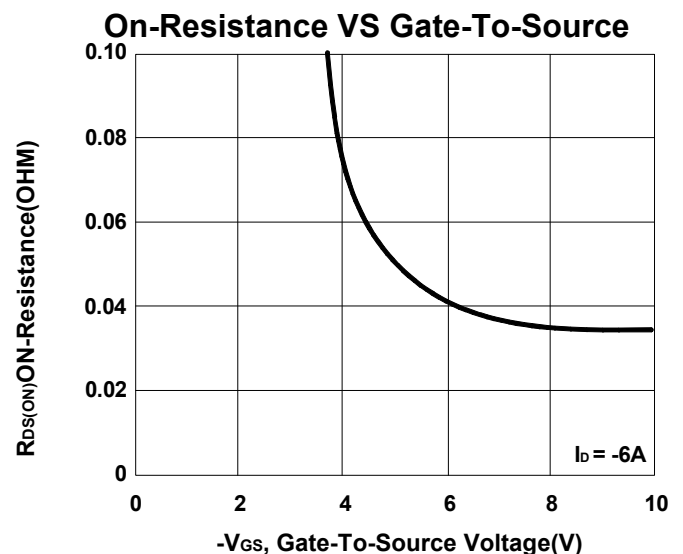
Single Pulse Maximum Power Dissipation



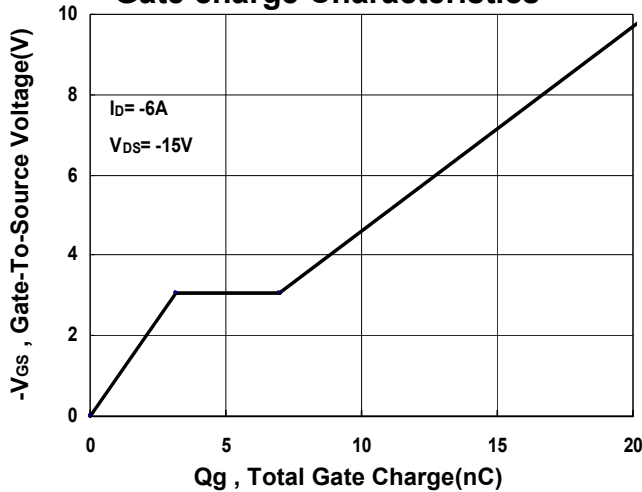
Transient Thermal Response Curve



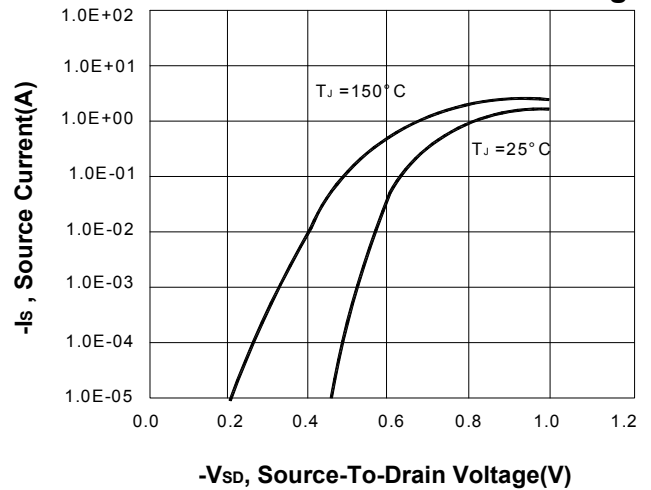
**TYPICAL PERFORMANCE CHARACTERISTICS
P-CHANNEL**



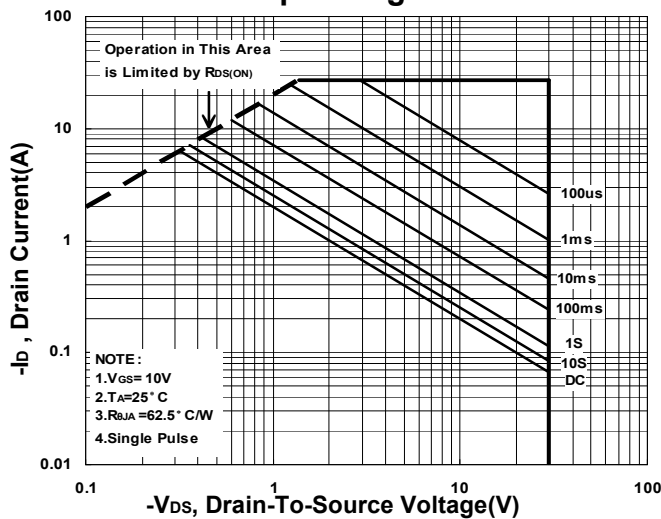
Gate charge Characteristics



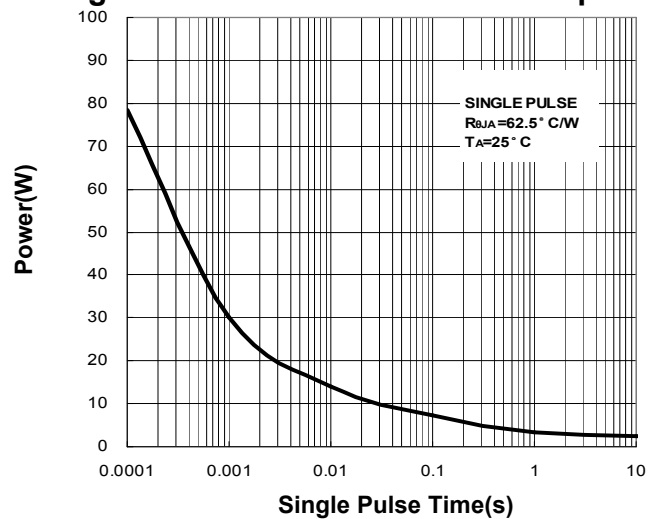
Source-Drain Diode Forward Voltage



Safe Operating Area



Single Pulse Maximum Power Dissipation



Transient Thermal Response Curve

