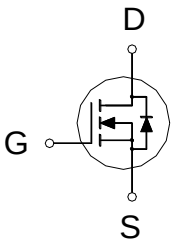
NIKO-SEM

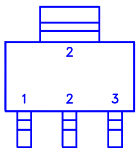
N-Channel Logic Level Enhancement Mode Field Effect Transistor

P0165EL
SOT-223
Halogen & Lead-Free

PRODUCT SUMMARY

$V_{(BR)DSS}$	$R_{DS(ON)}$	I_D
650V	14Ω	0.3A





1. GATE
2. DRAIN
3. SOURCE

RoHS Compliant

ABSOLUTE MAXIMUM RATINGS (T_A = 25 °C Unless Otherwise Noted)

PARAMETERS/TEST CONDITIONS		SYMBOL	LIMITS	UNITS
Gate-Source Voltage		V_{GS}	±30	V
Continuous Drain Current	T_A = 25 °C	I_D	0.3	A
	T_A = 70 °C		0.2	
Pulsed Drain Current[1]		I_{DM}	1.5	
Avalanche Current		I_{AS}	0.5	
Avalanche Energy	L = 10mH	E_{AS}	1.25	mJ
Power Dissipation	T_A = 25 °C	P_D	2	W
	T_A = 70 °C		1.3	
Operating Junction & Storage Temperature Range		T_j, T_{stg}	-55 to 150	°C

THERMAL RESISTANCE RATINGS

THERMAL RESISTANCE	SYMBOL	TYPICAL	MAXIMUM	UNITS
Junction-to-Ambient	$R_{\theta JA}$		64	°C / W

[1]Pulse width limited by maximum junction temperature.

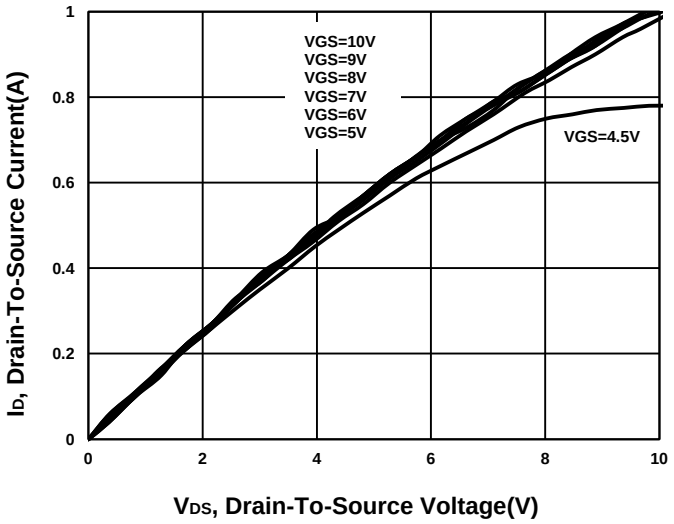
ELECTRICAL CHARACTERISTICS (T_J = 25 °C, Unless Otherwise Noted)

PARAMETER	SYMBOL	TEST CONDITIONS	LIMITS			UNIT
			MIN	TYP	MAX	
STATIC						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS} = 0V, I_D = 250μA	650			V
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = 250μA	2	3.1	4	
Gate-Body Leakage	I_{GSS}	V_{DS} = 0V, V_{GS} = ±30V			±100	nA
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} = 650V, V_{GS} = 0V			1	μA
		V_{DS} = 520V, V_{GS} = 0V, T_J = 55 °C			10	
Drain-Source On-State Resistance[1]	$R_{DS(ON)}$	V_{GS} = 10V, I_D = 0.15A	0.1	9.2	14	Ω
Forward Transconductance[1]	g_{fs}	V_{DS} = 10V, I_D = 0.15A		1.2		S

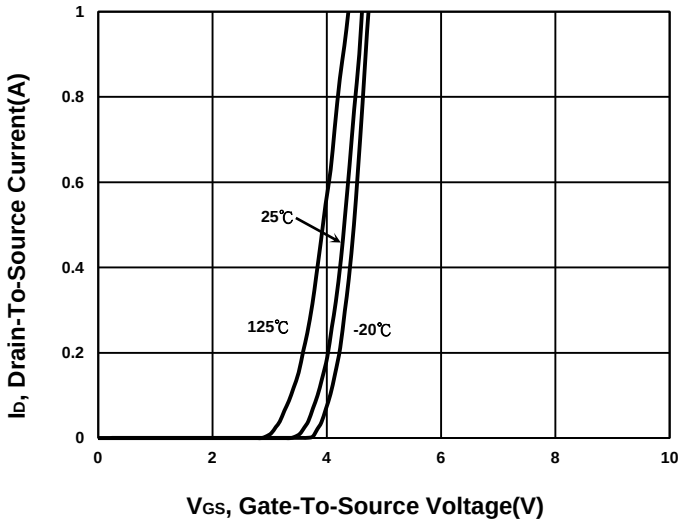
DYNAMIC						
Input Capacitance	C_{iss}	V_{GS} = 0V, V_{DS} = 25V, f = 1MHz		160		pF
Output Capacitance	C_{oss}			30		
Reverse Transfer Capacitance	C_{rss}			7		
Total Gate Charge[2]	Q_g	V_{DS} = 520V, V_{GS} = 10V, I_D = 0.3A		3.3		nC
Gate-Source Charge[2]	Q_{gs}			0.8		
Gate-Drain Charge[2]	Q_{gd}			0.6		
Turn-On Delay Time[2]	$t_{d(on)}$	V_{DS} = 325V, $I_D \cong$ 0.3A, V_{GS} = 10V, R_{GS} = 25Ω		40		nS
Rise Time[2]	t_r			95		
Turn-Off Delay Time[2]	$t_{d(off)}$			164		
Fall Time[2]	t_f			105		
SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS (T_J = 25 °C)						
Continuous Current	I_S				1	A
Forward Voltage[1]	V_{SD}	I_F = 0.3A, V_{GS} = 0V			1.5	V
Reverse Recovery Time	t_{rr}	I_F = 0.3A, dI/dt = 100 A/μs		249		nS
Reverse Recovery Charge	Q_{rr}			0.63		uC

[1]Pulse test : Pulse Width ≤ 300 μsec, Duty Cycle ≤ 2%.
[2]Independent of operating temperature.

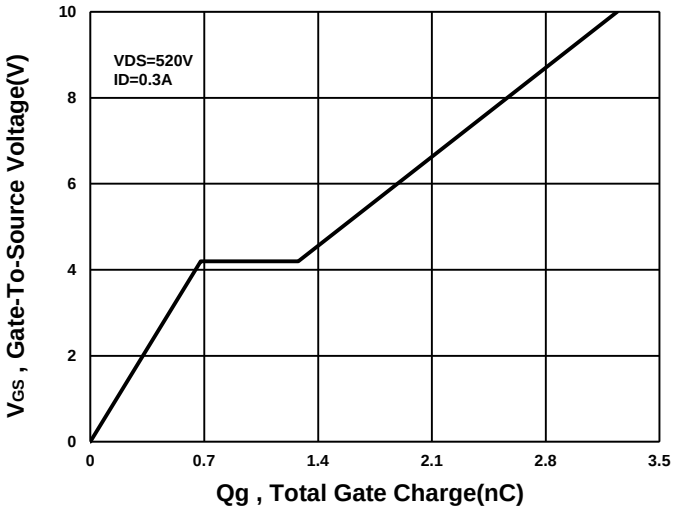
Output Characteristics



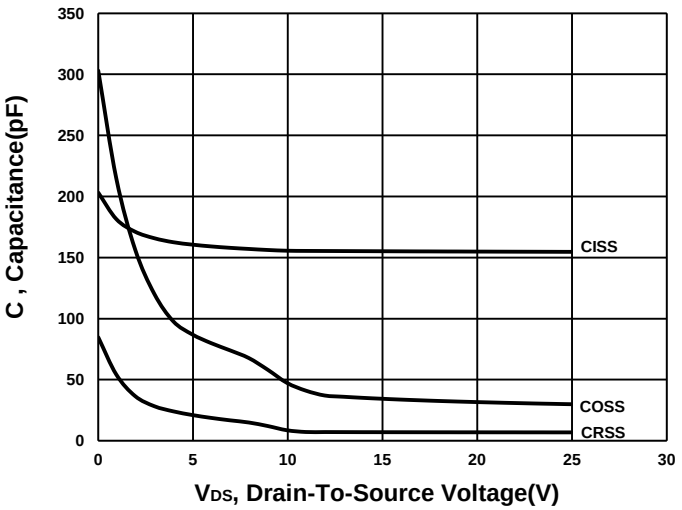
Transfer Characteristics



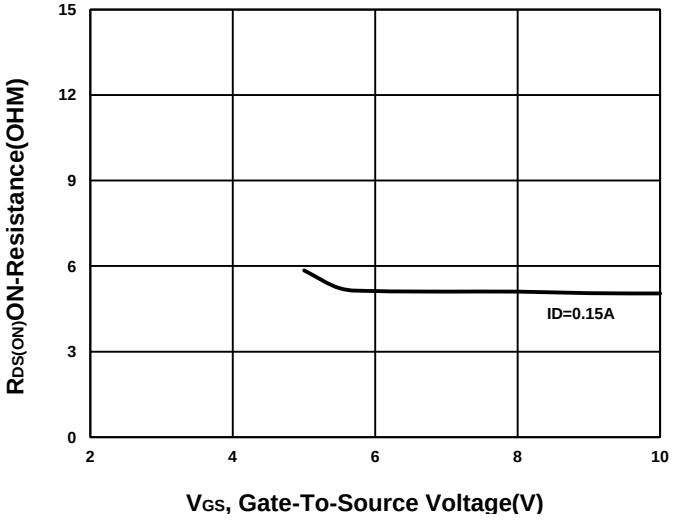
Gate charge Characteristics



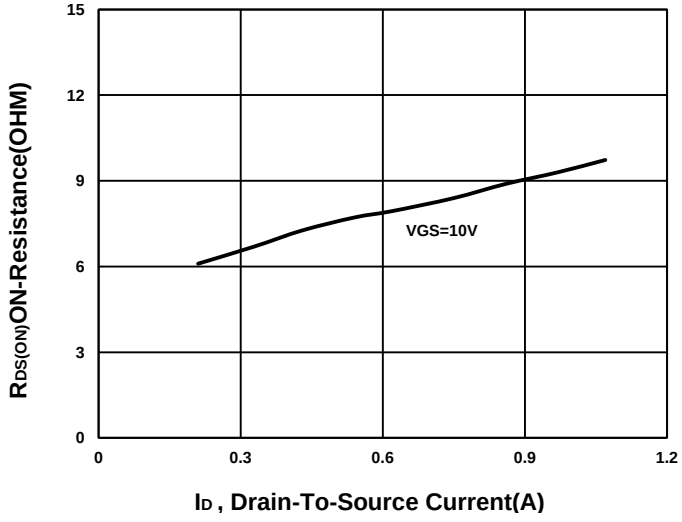
Capacitance Characteristic



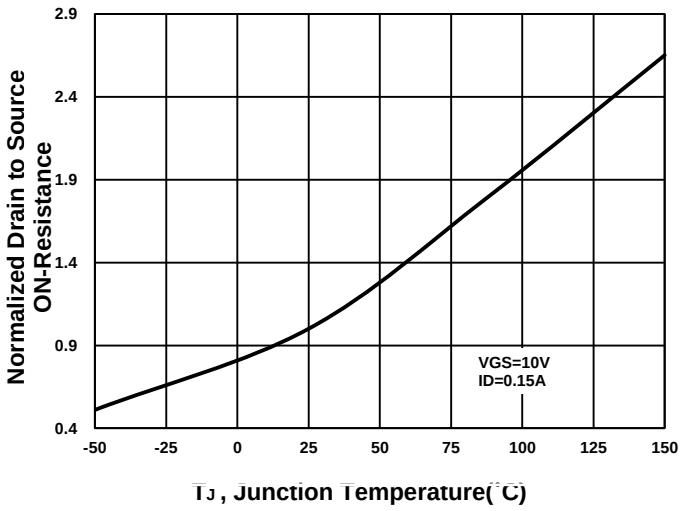
On-Resistance VS Gate-To-Source



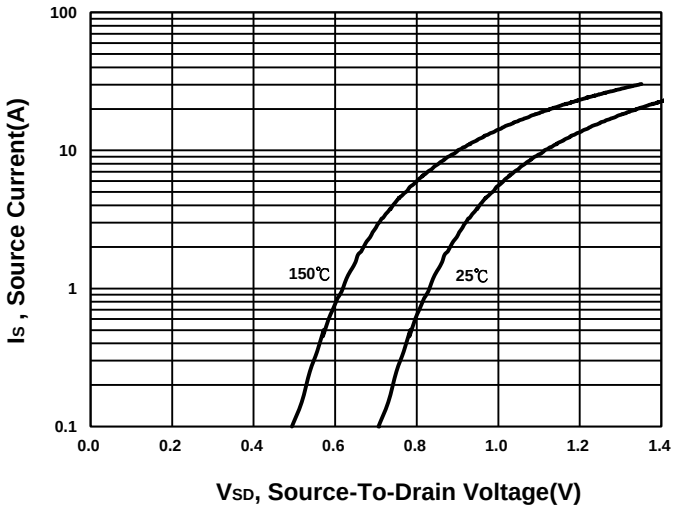
On-Resistance VS Drain Current



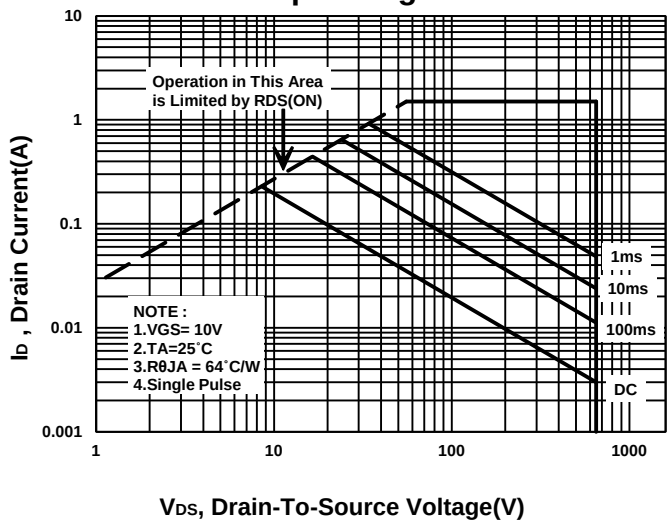
On-Resistance VS Temperature



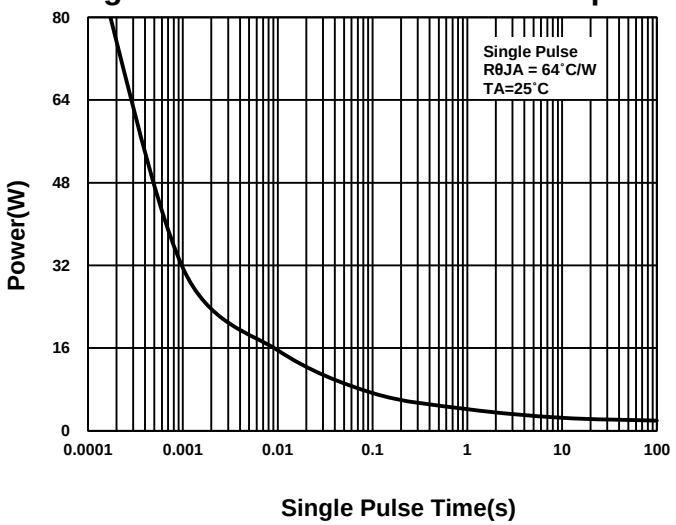
Source-Drain Diode Forward Voltage



Safe Operating Area



Single Pulse Maximum Power Dissipation



Transient Thermal Response Curve