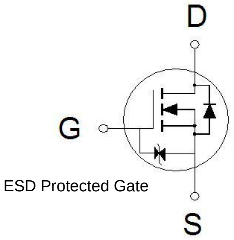
NIKO-SEM

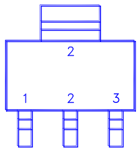
N-Channel Enhancement Mode Field Effect Transistor

PZC010BL
SOT-223
Halogen-Free & Lead-Free

PRODUCT SUMMARY

$V_{(BR)DSS}$	$R_{DS(ON)}$	I_D
100V	295mΩ	2.2A





1. GATE
2. DRAIN
3. SOURCE

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

PARAMETERS/TEST CONDITIONS		SYMBOL	LIMITS	UNITS
Gate-Source Voltage		V_{GS}	±16	V
Continuous Drain Current	T_A = 25 °C	I_D	2.2	A
	T_A = 70 °C		1.7	
Pulsed Drain Current[1]		I_{DM}	7	
Avalanche Current		I_{AS}	1.3	
Avalanche Energy	L = 1mH	E_{AS}	0.85	mJ
Power Dissipation[3]	T_A = 25 °C	P_D	3.5	W
	T_A = 70 °C		2.2	
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[2]	t ≦10s	$R_{\theta JA}$		35	°C / W
Junction-to-Ambient[2]	Steady-State	$R_{\theta JA}$		60	

[1]Pulse width limited by maximum junction temperature.
[2]The value of $R_{\theta JA}$ is measured with the device mounted on 1in[2] FR-4 board with 2oz. Copper, in a still air environment with T_A =25°C.
[3]The Power dissipation is based on $R_{\theta JA}$ t ≦10s value.

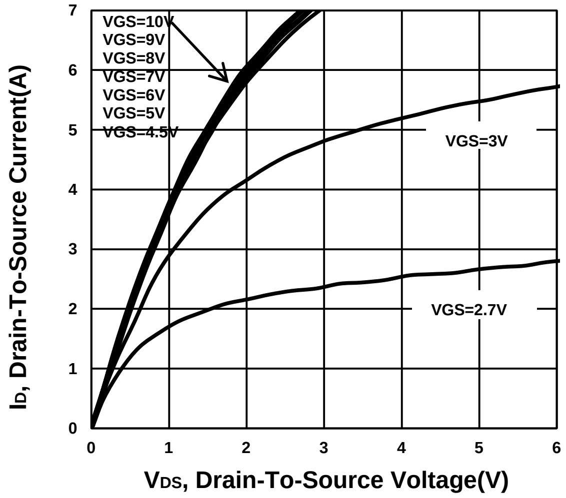
ELECTRICAL CHARACTERISTICS (T_J = 25 °C, Unless Otherwise Noted)

PARAMETER	SYMBOL	TEST CONDITIONS	LIMITS			UNIT
			MIN	TYP	MAX	
STATIC						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS} = 0V, I_D = 250µA	100			V
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = 250µA	1.3	1.8	2.3	
Gate-Body Leakage	I_{GSS}	V_{DS} = 0V, V_{GS} = ±16V			±30	uA
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} = 80V, V_{GS} = 0V			1	uA
		V_{DS} = 80V, V_{GS} = 0V, T_J = 125 °C			10	

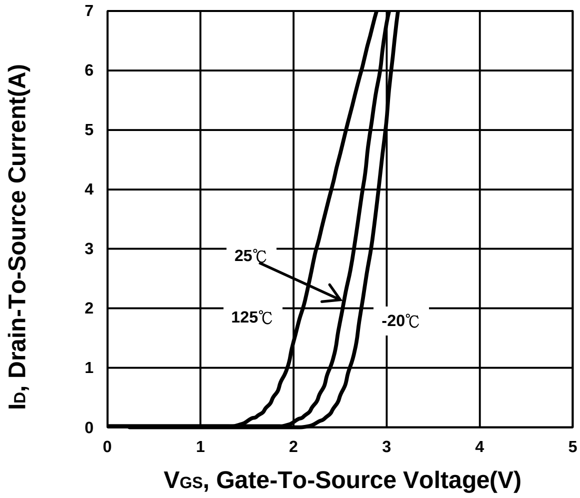
Drain-Source On-State Resistance[1]	$R_{DS(ON)}$	V_{GS} = 4.5V, I_D = 1A		233	330	mΩ
		V_{GS} = 10V, I_D = 1A		219	295	
Forward Transconductance[1]	g_{fs}	V_{DS} = 5V, I_D = 1A		4		S
DYNAMIC						
Input Capacitance	C_{iss}	V_{GS} = 0V, V_{DS} = 25V, f = 1MHz		213		pF
Output Capacitance	C_{oss}			33		
Reverse Transfer Capacitance	C_{rss}			18		
Gate Resistance	R_g	V_{GS} = 0V, V_{DS} = 0V, f = 1MHz		2.3		Ω
Total Gate Charge[2]	$Q_{g(VGS=10V)}$	V_{DS} = 50V, I_D = 1A		6.3		nC
	$Q_{g(VGS=4.5V)}$			4.2		
Gate-Source Charge[2]	Q_{gs}			0.5		
Gate-Drain Charge[2]	Q_{gd}			2.5		
Turn-On Delay Time[2]	$t_{d(on)}$	V_{DS} = 50V I_D ≅ 1A, V_{GS} = 10V, R_{GS} = 6Ω		7.5		nS
Rise Time[2]	t_r			5.3		
Turn-Off Delay Time[2]	$t_{d(off)}$			17		
Fall Time[2]	t_f			3		
SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS (T_J = 25 °C)						
Continuous Current	I_S				2.2	A
Forward Voltage[1]	V_{SD}	I_F = 1A, V_{GS} = 0V			1.2	V
Reverse Recovery Time	t_{rr}	I_F = 1A, dI/dt = 100 A/µs		21		nS
Reverse Recovery Charge	Q_{rr}			20		nC

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

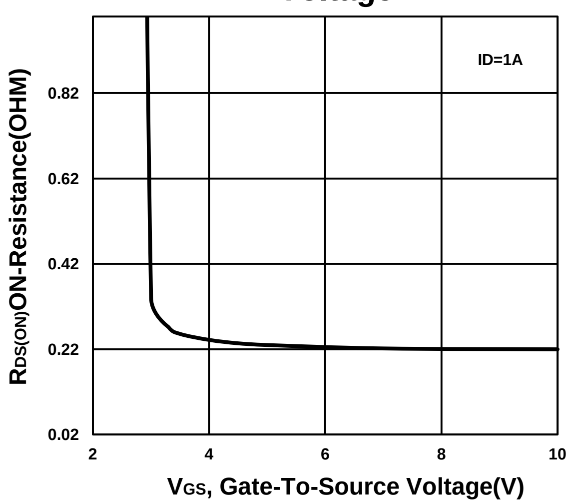
Output Characteristics



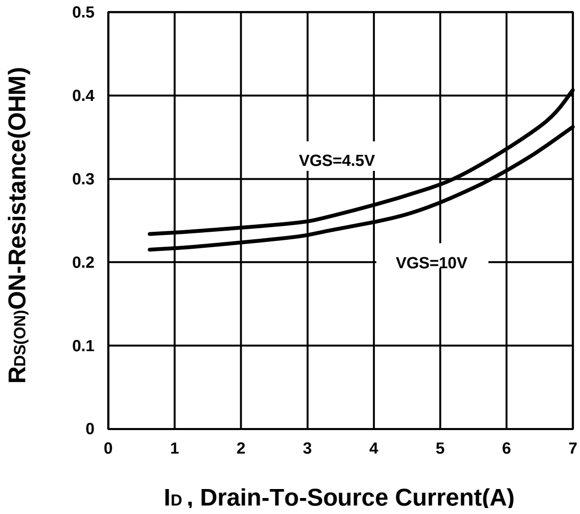
Transfer Characteristics



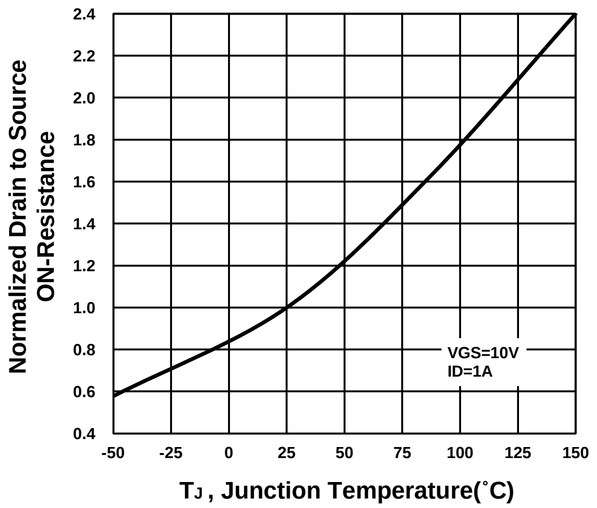
On-Resistance VS Gate-To-Source Voltage



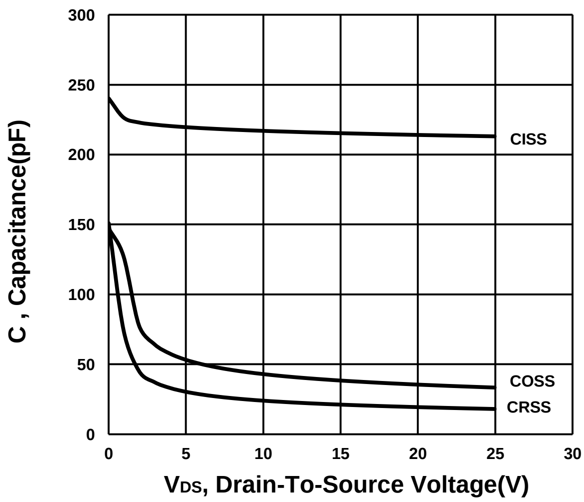
On-Resistance VS Drain Current



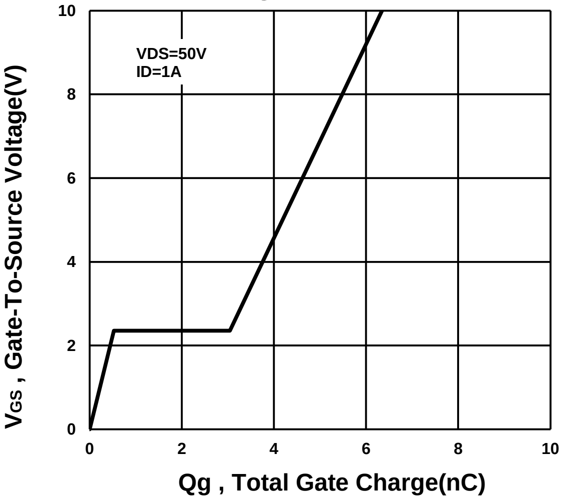
On-Resistance VS Temperature



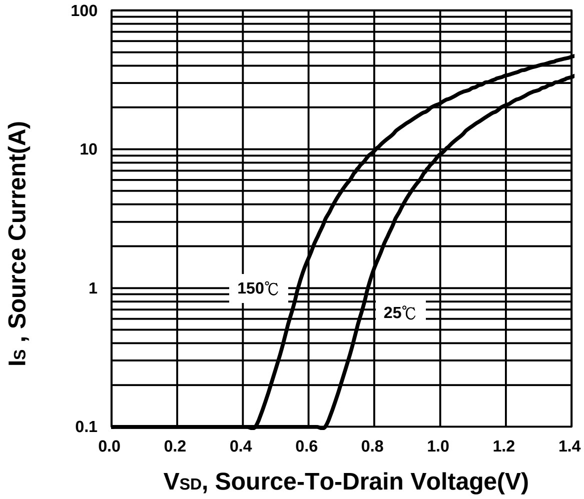
Capacitance Characteristic



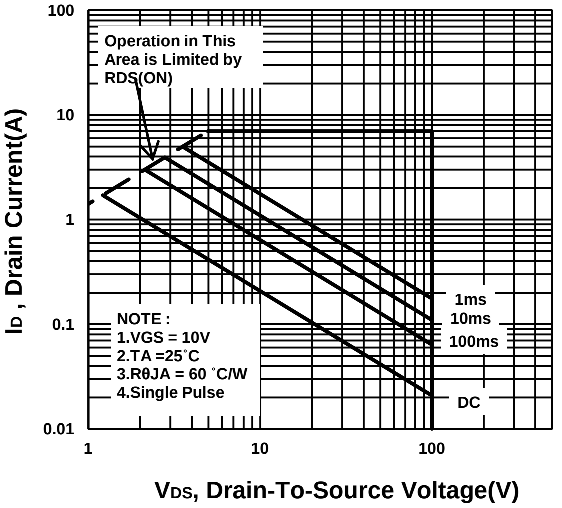
Gate charge Characteristics



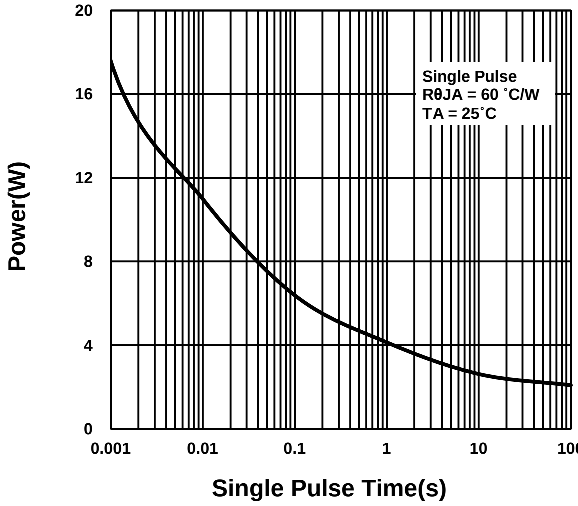
Source-Drain Diode Forward Voltage



Safe Operating Area



Single Pulse Maximum Power Dissipation



Transient Thermal Response Curve