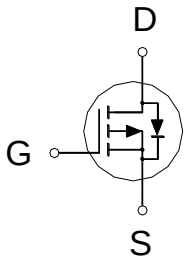
NIKO-SEM

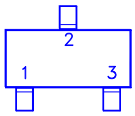
P-Channel Enhancement Mode Field Effect Transistor

PM523BA
SOT-23(S)
Halogen-Free & Lead-Free

PRODUCT SUMMARY

$V_{(BR)DSS}$	$R_{DS(ON)}$	I_D
-30V	80mΩ	-2.5A





1: GATE
2: DRAIN
3: SOURCE

RoHS Compliant

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

PARAMETERS/TEST CONDITIONS		SYMBOL	LIMITS	UNITS
Drain-Source Voltage		V_{DS}	-30	V
Gate-Source Voltage		V_{GS}	±20	V
Continuous Drain Current	T_A = 25 °C	I_D	-2.5	A
	T_A = 70 °C		-2	
Pulsed Drain Current[1]		I_{DM}	-10	
Power Dissipation	T_A = 25 °C	P_D	0.8	W
	T_A = 70 °C		0.5	
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]	$R_{\theta JA}$		139	°C / W
Junction-to-Case	$R_{\theta JC}$		70	

[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.

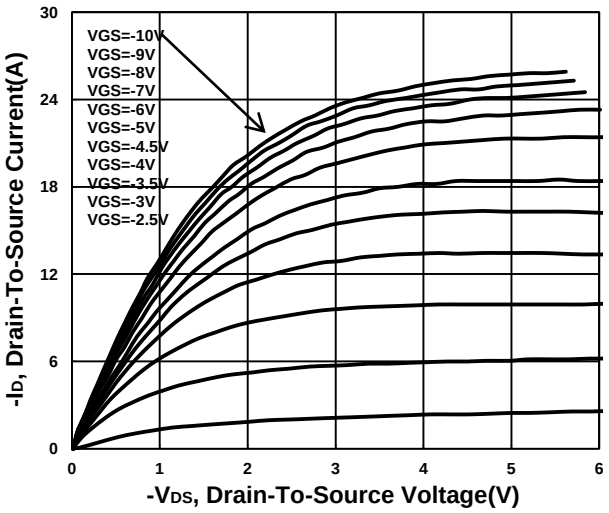
ELECTRICAL CHARACTERISTICS (T_J = 25 °C, Unless Otherwise Noted)

PARAMETER	SYMBOL	TEST CONDITIONS	LIMITS			UNIT
			MIN	TYP	MAX	
STATIC						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS} = 0V, I_D = -250μA	-30			V
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = -250μA	-1	-1.5	-3	
Gate-Body Leakage	I_{GSS}	V_{DS} = 0V, V_{GS} = ±20V			±100	nA
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} = -24V, V_{GS} = 0V			-1	μA
		V_{DS} = -20V, V_{GS} = 0V, T_J = 70 °C			-10	
Drain-Source On-State Resistance[1]	$R_{DS(on)}$	V_{GS} = -10V, I_D = -2A		67	80	mΩ
		V_{GS} = -4.5V, I_D = -1.5A		95	120	

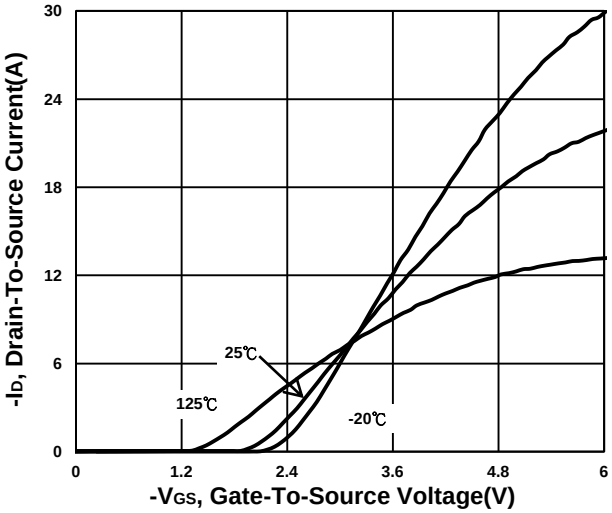
Forward Transconductance[1]	g_{fs}	V_{DS} = -10V, I_D = -2.5A		6.2		S
DYNAMIC						
Input Capacitance	C_{iss}	V_{GS} = 0V, V_{DS} = -15V, f = 1MHz		270		pF
Output Capacitance	C_{oss}			46		
Reverse Transfer Capacitance	C_{rss}			37		
Total Gate Charge[2]	Qg	V_{DS} = -15V, I_D = -2A, V_{GS} = -10V		7.2		nC
Gate-Source Charge[2]	Q_{gs}			1.1		
Gate-Drain Charge[2]	Q_{gd}			1.8		
Turn-On Delay Time[2]	$t_{d(on)}$	V_{DS} = -15V, $I_D \cong$ -2A V_{GS} = -10V, R_{GEN} =6Ω		15		nS
Rise Time[2]	t_r			36		
Turn-Off Delay Time[2]	$t_{d(off)}$			43.5		
Fall Time[2]	t_f			35		
SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS (T_J = 25 °C)						
Continuous Current	I_S				-0.7	A
Forward Voltage[1]	V_{SD}	I_F = -2A, V_{GS} = 0V			-1.1	V
Reverse Recovery Time	t_{rr}	I_F = -2A, dI_F/dt = 100A / μS		11		nS
Reverse Recovery Charge	Q_{rr}			3.3		nC

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

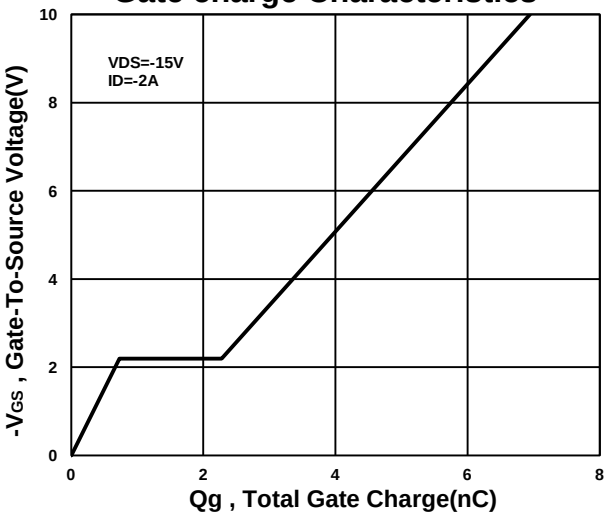
Output Characteristics



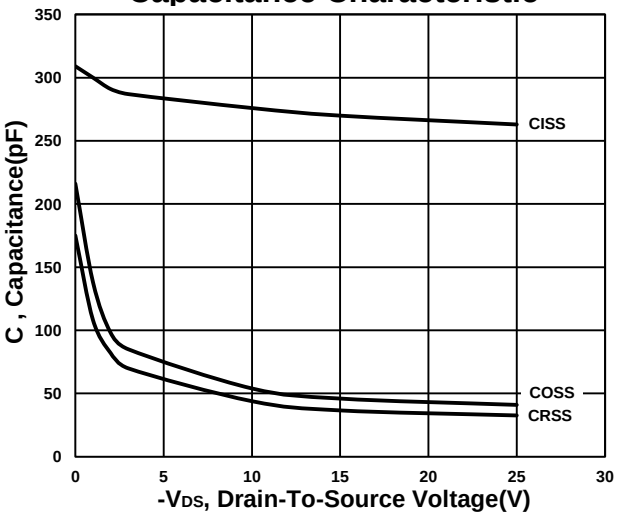
Transfer Characteristics



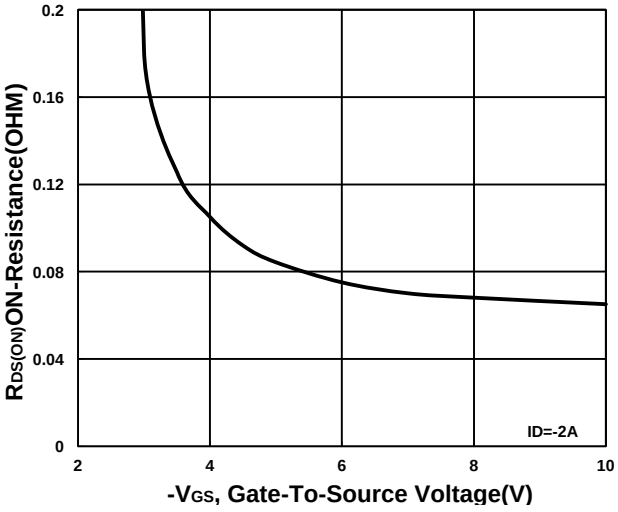
Gate charge Characteristics



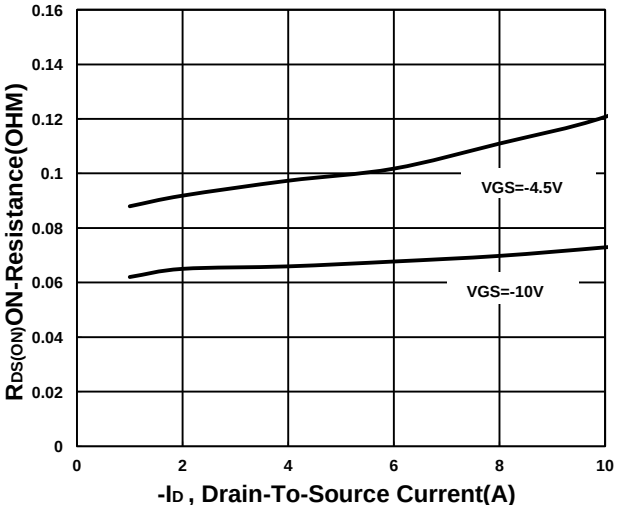
Capacitance Characteristic



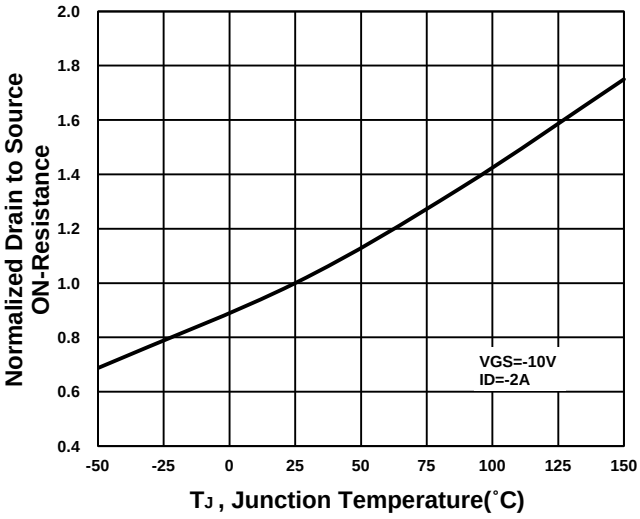
On-Resistance VS Gate-To-Source



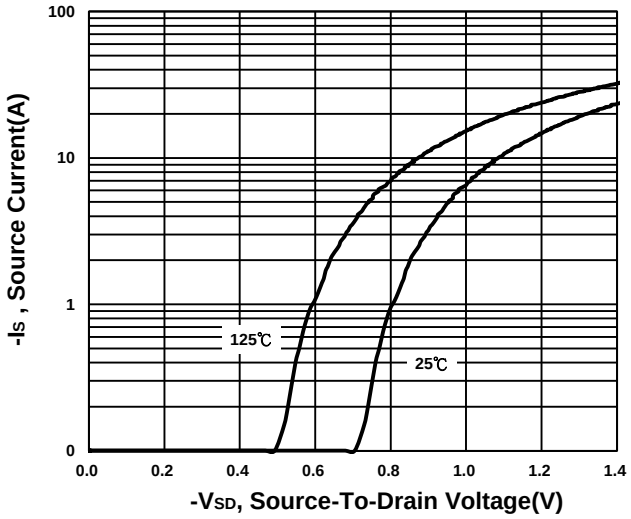
On-Resistance VS Drain Current



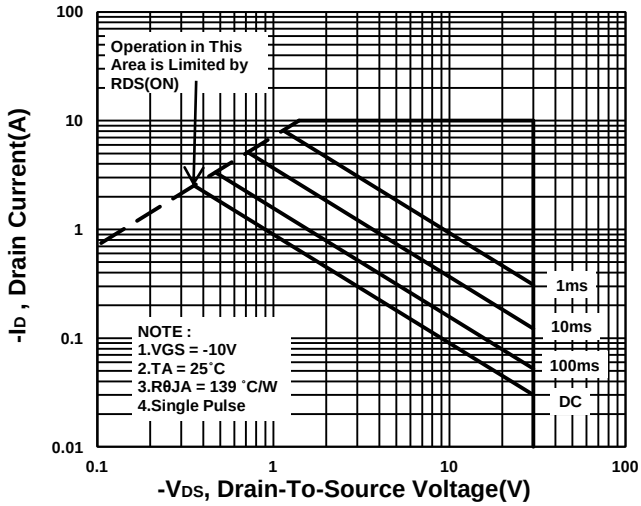
On-Resistance VS Temperature



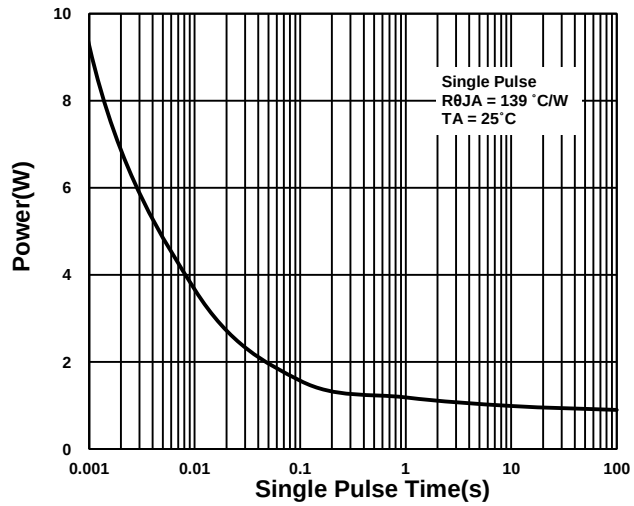
Source-Drain Diode Forward Voltage



Safe Operating Area



Single Pulse Maximum Power Dissipation



Transient Thermal Response Curve