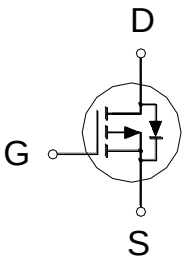
NIKO-SEM

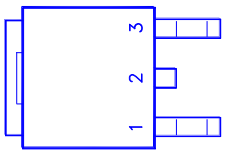
P-Channel Enhancement Mode Field Effect Transistor

PD551BA
TO-252
Halogen-Free & Lead-Free

PRODUCT SUMMARY

$V_{(BR)DSS}$	$R_{DS(ON)}$	I_D
-30V	20mΩ	-35A





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}	±25	V
Continuous Drain Current[2]	T_C = 25 °C	I_D	-35	A
	T_C = 100 °C		-22	
Pulsed Drain Current[1]		I_{DM}	-100	
Avalanche Current		I_{AS}	-26.5	
Avalanche Energy	L = 0.1mH	E_{AS}	35	mJ
Power Dissipation	T_C = 25 °C	P_D	46	W
	T_C = 100 °C		18	
Junction & Storage Temperature Range		T_J, T_{stg}	-55 to 150	°C

THERMAL RESISTANCE RATINGS

THERMAL RESISTANCE	SYMBOL	TYPICAL	MAXIMUM	UNITS
Junction-to-Case	$R_{\theta JC}$		2.7	°C / W
Junction-to-Ambient	$R_{\theta JA}$		62.5	

[1]Pulse width limited by maximum junction temperature.
[2]Package limitation current is -30A.

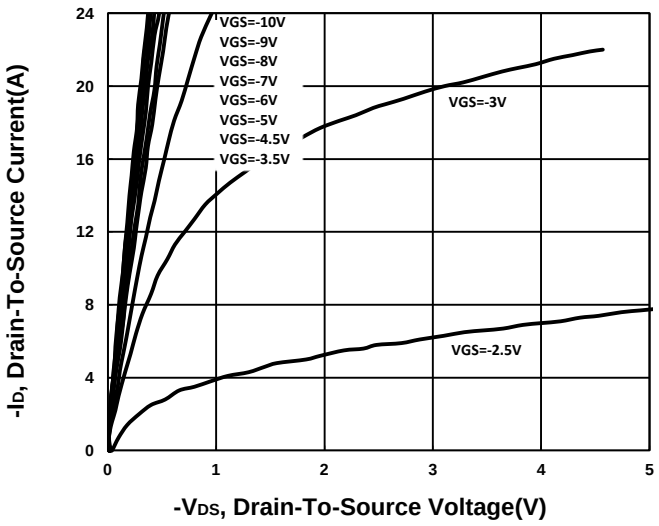
ELECTRICAL CHARACTERISTICS (T_J = 25 °C, Unless Otherwise Noted)

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} = ±25V			±100	nA
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} = -24V, V_{GS} = 0V			-1	μA
		V_{DS} = -30V, V_{GS} = 0V, T_J = 125 °C			-10	

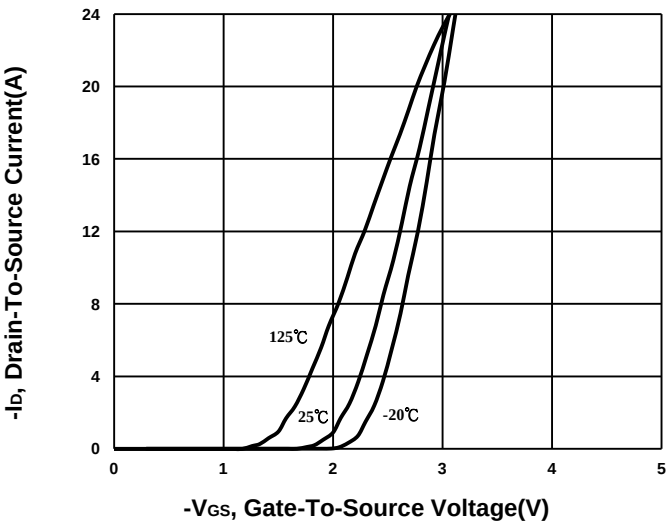
Drain-Source On-State Resistance[1]	$R_{DS(ON)}$	V_{GS} = -10V, I_D = -10A		16	20	mΩ
		V_{GS} = -4.5V, I_D = -10A		23	30	
Forward Transconductance[1]	g_{fs}	V_{DS} = -5V, I_D = -10A		21		S
DYNAMIC						
Input Capacitance[4]	C_{iss}	V_{GS} = 0V, V_{DS} = -15V, f = 1MHz	920	1150	1380	pF
Output Capacitance[4]	C_{oss}		123	154	184	
Reverse Transfer Capacitance[4]	C_{rss}		72	120	168	
Gate Resistance	R_g	V_{GS} =0V, V_{DS} = 0V, f = 1MHz	3.8	7.5	11.3	Ω
Total Gate Charge[2,4]	Q_g (V_{GS}=-10V)	V_{DS} = -15V , I_D = -10A	17.6	24	26.4	nC
	Q_g(V_{GS}=-4.5V)		9.6	12	14.4	
Gate-Source Charge[2,4]	Q_{gs}		1.5	3	3.5	
Gate-Drain Charge[2,4]	Q_{gd}		3.2	5.3	7.4	
Turn-On Delay Time[2]	$t_{d(on)}$	V_{DS} = -15V , $I_D \cong$ -10A, V_{GS} = -10V, R_{GEN} =6Ω		23		nS
Rise Time[2]	t_r			18		
Turn-Off Delay Time[2]	$t_{d(off)}$			51		
Fall Time[2]	t_f			26		
SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS (T_J = 25 °C)						
Continuous Current[3]	I_S				-35	A
Forward Voltage[1]	V_{SD}	I_F = -10A, V_{GS} = 0V			-1.3	V
Reverse Recovery Time[4]	t_{rr}	I_F = -10A, dI_F/dt = 100A / μS	5	10	15	nS
Reverse Recovery Charge[4]	Q_{rr}		1	2	4	nC

[1]Pulse test : Pulse Width ≤ 300 μsec, Duty Cycle ≤ 2%.
[2]Independent of operating temperature.
[3]Package limitation current is -30A.
[4]Guaranteed by design, not subject to production testing.

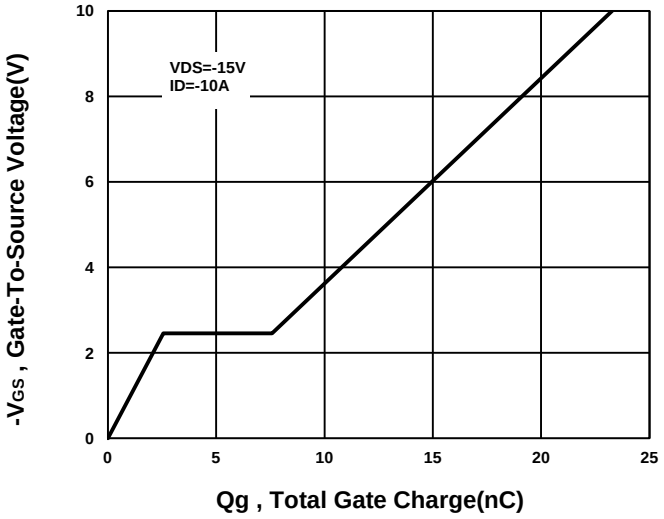
Output Characteristics



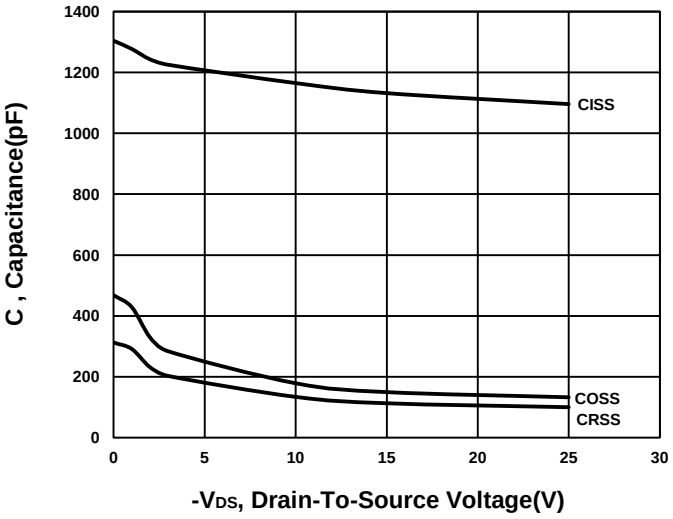
Transfer Characteristics



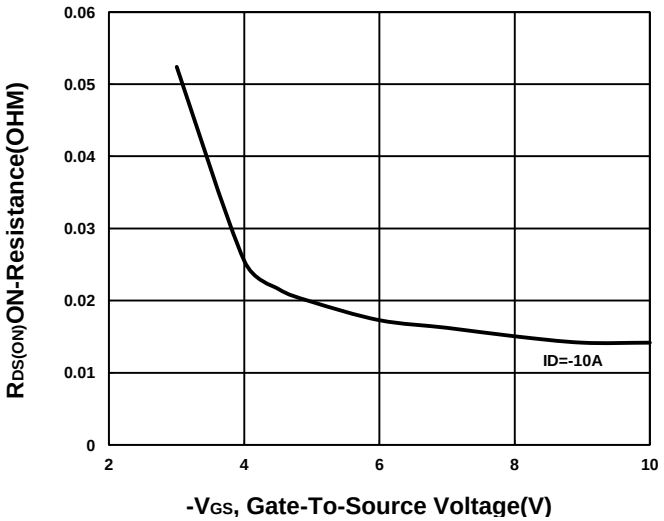
Gate charge Characteristics



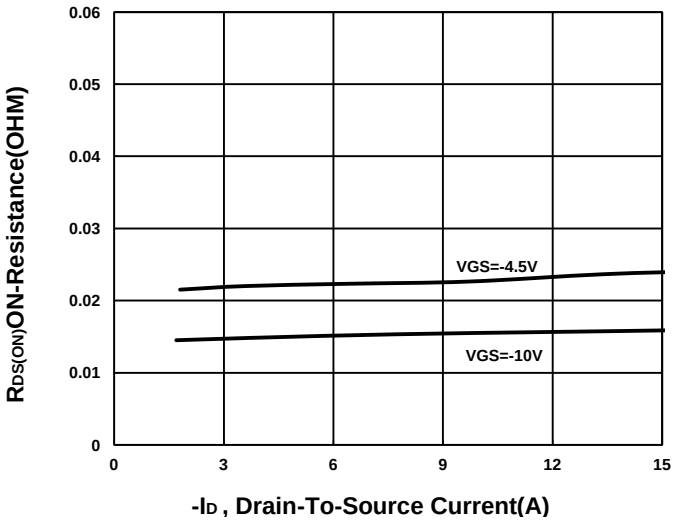
Capacitance Characteristic



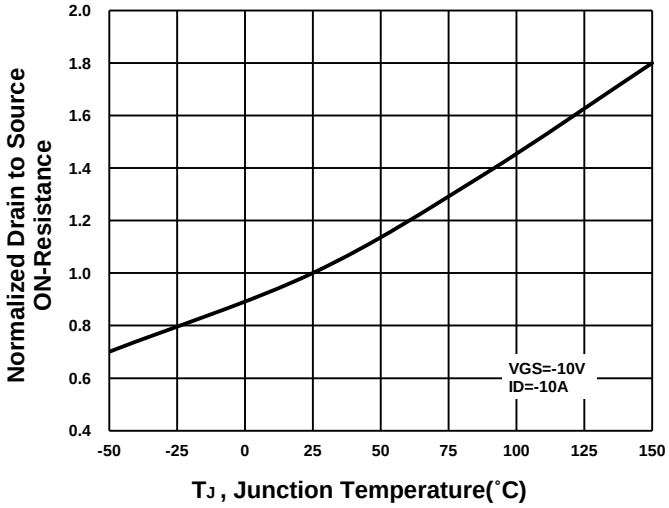
On-Resistance VS Gate-To-Source



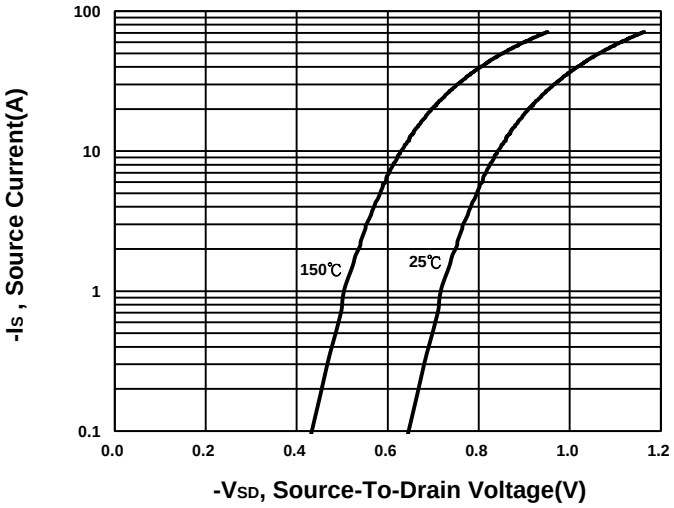
On-Resistance VS Drain Current



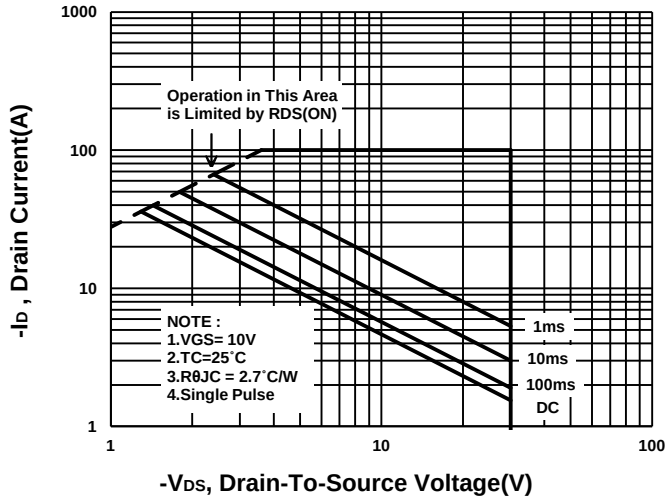
On-Resistance VS Temperature



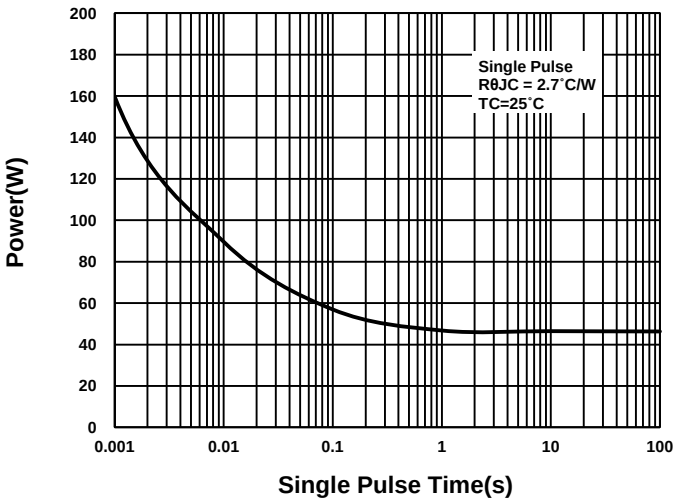
Source-Drain Diode Forward Voltage



Safe Operating Area



Single Pulse Maximum Power Dissipation



Transient Thermal Response Curve