

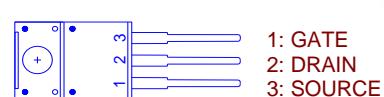
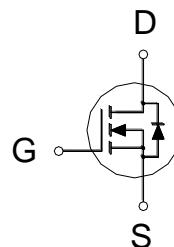
**NIKO-SEM**
**N-Channel Enhancement Mode  
Field Effect Transistor**
**P5515BTF**

TO-220F

Halogen-Free &amp; Lead-Free

**PRODUCT SUMMARY**

$V_{(BR)DSS}$	$R_{DS(ON)}$	$I_D$
150V	55mΩ	15.8A

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

PARAMETERS/TEST CONDITIONS		SYMBOL	LIMITS	UNITS
Drain-Source Voltage		$V_{DS}$	150	V
Gate-Source Voltage		$V_{GS}$	$\pm 20$	V
Continuous Drain Current	$T_C = 25^\circ C$	$I_D$	15.8	A
	$T_C = 100^\circ C$		10	
Pulsed Drain Current <sup>1</sup>		$I_{DM}$	60	A
Avalanche Current		$I_{AS}$	11.6	
Avalanche Energy	$L = 1mH$	$E_{AS}$	67.2	mJ
Power Dissipation	$T_C = 25^\circ C$	$P_D$	34	W
	$T_C = 100^\circ C$		13	
Junction & Storage Temperature Range		$T_J, T_{stg}$	-55 to 150	°C

**THERMAL RESISTANCE RATINGS**

THERMAL RESISTANCE	SYMBOL	TYPICAL	MAXIMUM	UNITS
Junction-to-Ambient	$R_{\theta JA}$		62.5	°C / W
Junction-to-Case	$R_{\theta JC}$		3.6	

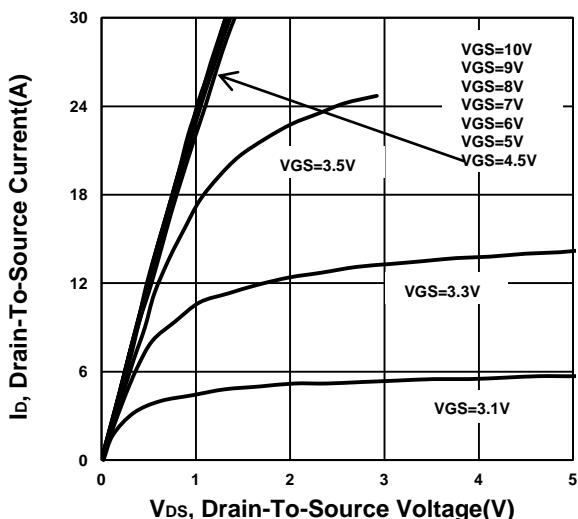
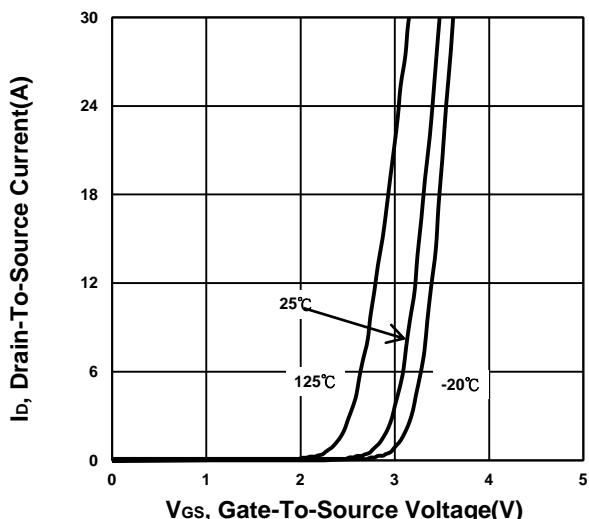
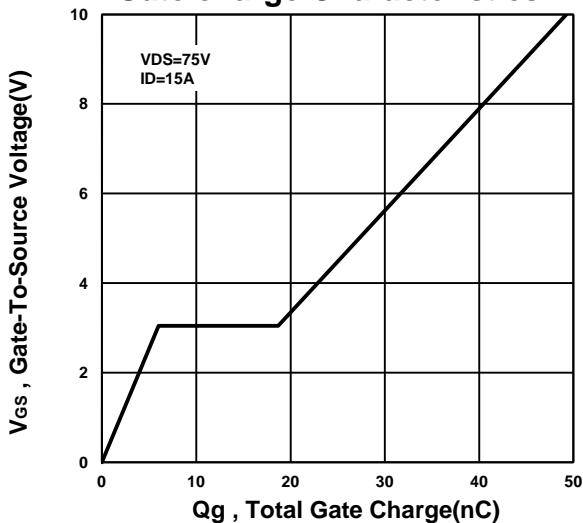
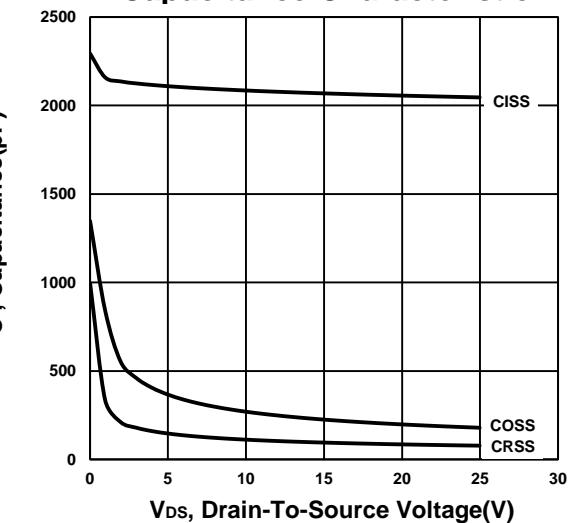
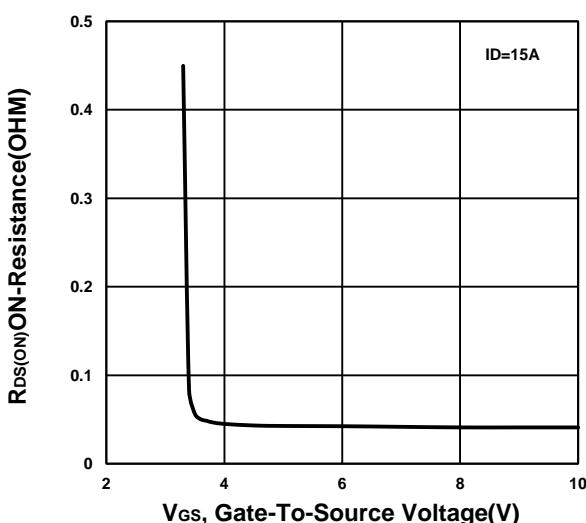
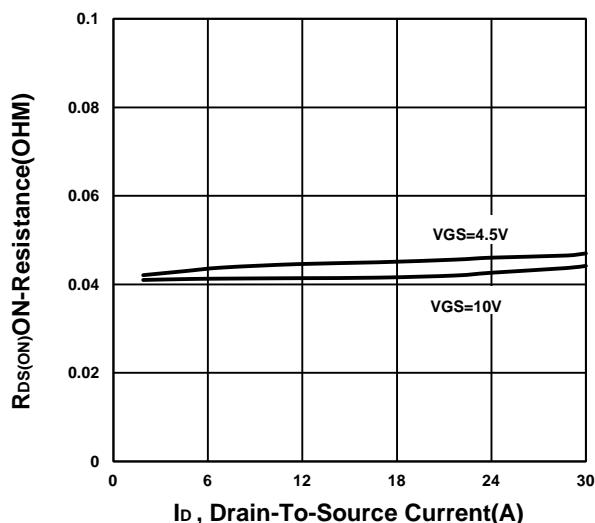
<sup>1</sup>Pulse width limited by maximum junction temperature.
**ELECTRICAL CHARACTERISTICS ( $T_J = 25^\circ C$ , Unless Otherwise Noted)**

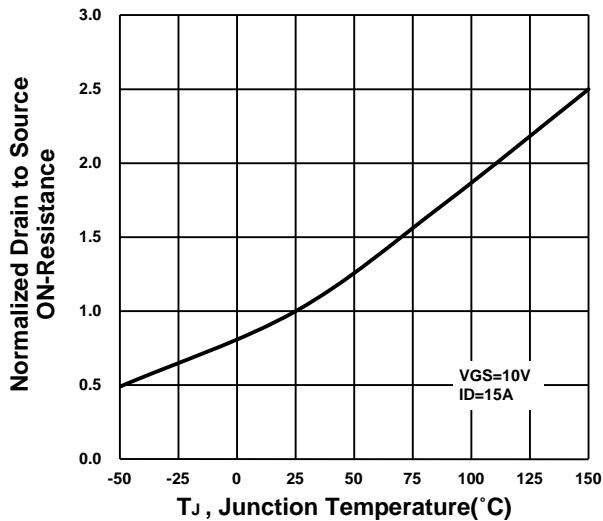
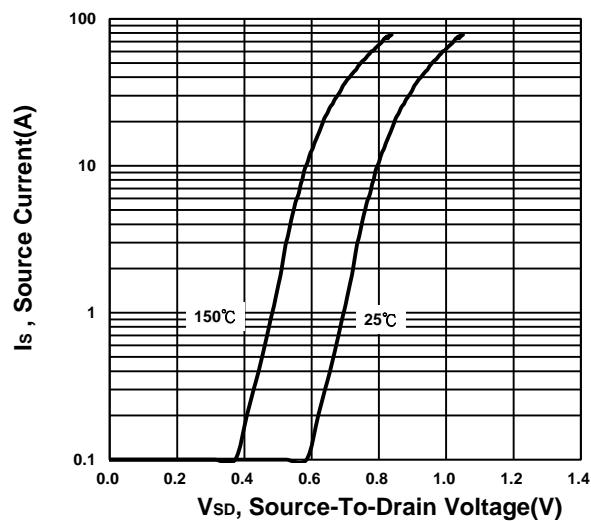
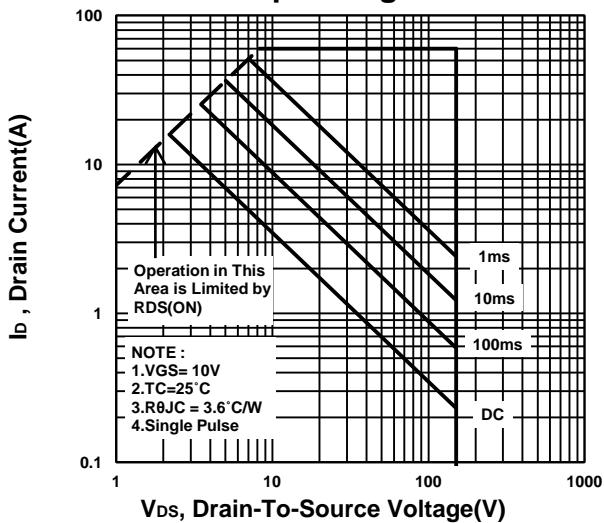
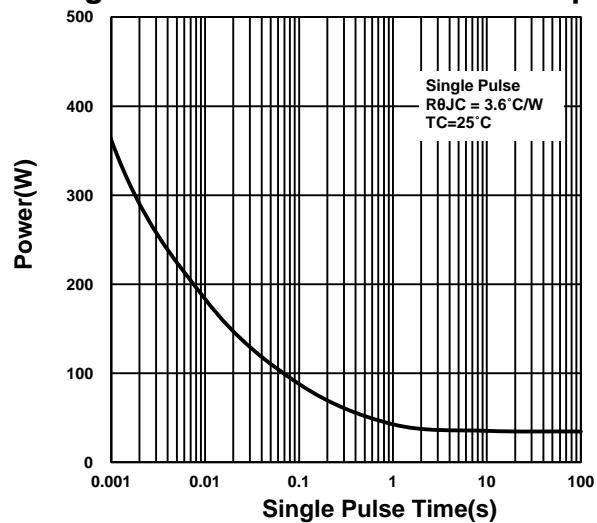
PARAMETER	SYMBOL	TEST CONDITIONS	LIMITS			UNIT
			MIN	TYP	MAX	
<b>STATIC</b>						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = 250\mu A$	150			V
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\mu A$	1.3	1.87	2.3	
Gate-Body Leakage	$I_{GSS}$	$V_{DS} = 0V, V_{GS} = \pm 20V$			$\pm 100$	nA
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS} = 120V, V_{GS} = 0V$			1	$\mu A$
		$V_{DS} = 100V, V_{GS} = 0V, T_J = 125^\circ C$			10	
Drain-Source On-State Resistance <sup>1</sup>	$R_{DS(ON)}$	$V_{GS} = 4.5V, I_D = 10A$		43	65	$m\Omega$
		$V_{GS} = 10V, I_D = 15A$		42	55	

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Forward Transconductance <sup>1</sup>	$g_{fs}$	$V_{DS} = 5V, I_D = 15A$	60		S
<b>DYNAMIC</b>					
Input Capacitance	$C_{iss}$	$V_{GS} = 0V, V_{DS} = 25V, f = 1MHz$	2048		pF
Output Capacitance	$C_{oss}$		179		
Reverse Transfer Capacitance	$C_{rss}$		77		
Total Gate Charge <sup>2</sup>	$Q_g$		49		
Gate-Source Charge <sup>2</sup>	$Q_{gs}$	$V_{GS} = 10V, V_{DS} = 75V$ $I_D = 15A$	6		nC
Gate-Drain Charge <sup>2</sup>	$Q_{gd}$		13		
Turn-On Delay Time <sup>2</sup>	$t_{d(on)}$		17		
Rise Time <sup>2</sup>	$t_r$		18		
Turn-Off Delay Time <sup>2</sup>	$t_{d(off)}$	$V_{DS} = 75V,$ $I_D \approx 15A, V_{GS} = 10V, R_{GEN} = 6\Omega$	68		nS
Fall Time <sup>2</sup>	$t_f$		45		
<b>SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS (<math>T_J = 25^\circ C</math>)</b>					
Continuous Current	$I_S$			15.8	A
Forward Voltage <sup>1</sup>	$V_{SD}$	$I_F = 15A, V_{GS} = 0V$		1	V
Diode Reverse Recovery Time	$t_{rr}$	$I_F = 15A, dI/dt = 100A/\mu s$	81		nS
Diode Reverse Recovery Charge	$Q_{rr}$		173		nC

<sup>1</sup>Pulse test : Pulse Width  $\leq 300 \mu sec$ , Duty Cycle  $\leq 2\%$ .<sup>2</sup>Independent of operating temperature.

**NIKO-SEM****N-Channel Enhancement Mode  
Field Effect Transistor****P5515BTF**  
TO-220F  
Halogen-Free & Lead-Free**Output Characteristics****Transfer Characteristics****Gate charge Characteristics****Capacitance Characteristic****On-Resistance VS Gate-to-Source****On-Resistance VS Drain Current**

**NIKO-SEM****N-Channel Enhancement Mode  
Field Effect Transistor****P5515BTF**  
TO-220F  
Halogen-Free & Lead-Free**On-Resistance VS Temperature****Source-Drain Diode Forward Voltage****Safe Operating Area****Single Pulse Maximum Power Dissipation****Transient Thermal Response Curve**