NIKO-SEM

N-Channel Enhancement Mode Field Effect Transistor

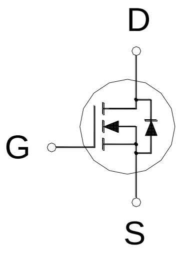
P0460EDA

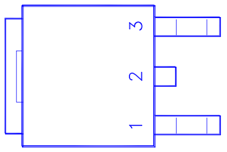
TO-252

Halogen-Free & Lead-Free

PRODUCT SUMMARY

$V_{(BR)DSS}$	$R_{DS(ON)}$	I_D
600V	2.5Ω	4A





1. GATE
2. DRAIN
3. SOURCE

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

PARAMETERS/TEST CONDITIONS		SYMBOL	LIMITS	UNITS
Drain-Source Voltage		V_{DS}	600	V
Gate-Source Voltage		V_{GS}	±30	V
Continuous Drain Current[2]	T_C = 25 °C	I_D	4	A
	T_C = 100 °C		2.5	
Pulsed Drain Current[1, 2]		I_{DM}	20	
Avalanche Current[3]		IAS	2	
Avalanche Energy[3]		EAS	20	mJ
Power Dissipation	T_C = 25 °C	P_D	46	W
	T_C = 100 °C		18	
Operating Junction & Storage Temperature Range		Tj, Tstg	-55 to 150	°C

THERMAL RESISTANCE RATINGS

THERMAL RESISTANCE	SYMBOL	TYPICAL	MAXIMUM	UNITS
Junction-to-Case	$R_{\theta JC}$		2.8	°C / W
Junction-to-Ambient	$R_{\theta JA}$		62.5	

[1] Pulse width limited by maximum junction temperature.

[2] Limited only by maximum temperature allowed

[3] VDD = 50V , L = 10mH ,starting TJ = 25˚C

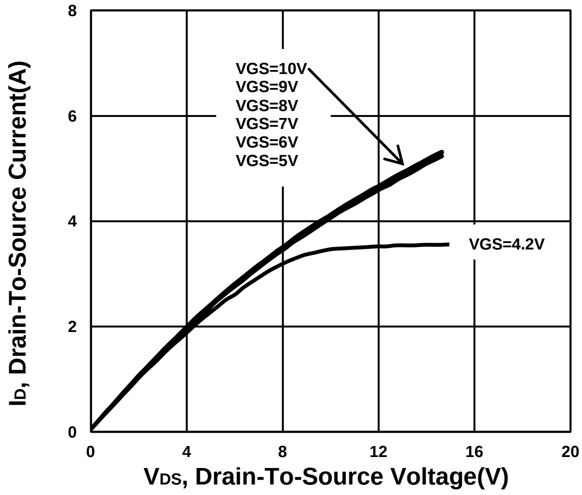
ELECTRICAL CHARACTERISTICS (T_J = 25 °C, Unless Otherwise Noted)

PARAMETER	SYMBOL	TEST CONDITIONS	LIMITS			UNIT
			MIN	TYP	MAX	
STATIC						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS} = 0V, I_D = 250µA	600			V
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = 250µA	2	2.8	4	
Gate-Body Leakage	I_{GSS}	V_{DS} = 0V, V_{GS} = ±30V			±100	nA
Gate Voltage Drain Current	I_{DSS}	V_{DS} = 600V, V_{GS} = 0V , T_C = 25 °C			1	µA
		V_{DS} = 480V, V_{GS} = 0V , T_C = 100 °C			10	

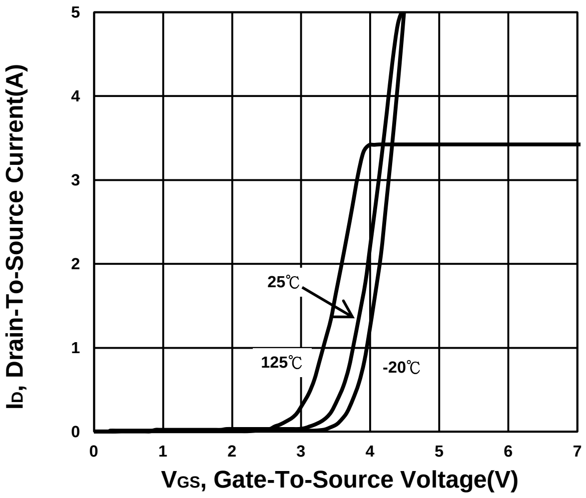
Drain-Source On-State Resistance[1]	$R_{DS(ON)}$	$V_{GS} = 10V, I_D = 2A$		2	2.5	Ω
Forward Transconductance[1]	g_{fs}	$V_{DS} = 15V, I_D = 2A$		5.5		S
DYNAMIC						
Input Capacitance	C_{iss}	$V_{GS} = 0V, V_{DS} = 25V, f = 1MHz$		565		pF
Output Capacitance	C_{oss}			62		
Reverse Transfer Capacitance	C_{rss}			6		
Total Gate Charge[2]	Q_g	$V_{DD} = 480V, I_D = 4A, V_{GS} = 10V$		14		nC
Gate-Source Charge[2]	Q_{gs}			2.5		
Gate-Drain Charge[2]	Q_{gd}			5.1		
Turn-On Delay Time[2]	$t_{d(on)}$	$V_{GS} = 10V$, $V_{DD} = 300V$, $I_D = 4A, R_G = 25\Omega$		18		nS
Rise Time[2]	t_r			48		
Turn-Off Delay Time[2]	$t_{d(off)}$			47		
Fall Time[2]	t_f			50		
SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS (T_J = 25 °C)						
Continuous Current[3]	I_S				4	A
Forward Voltage[1]	V_{SD}	$I_F = 4A, V_{GS} = 0V$			1	V
Reverse Recovery Time	t_{rr}	$I_F = 4A, dI_F/dt = 100A / \mu S$		341		nS
Reverse Recovery Charge	Q_{rr}			2.1		uC

[1] Pulse test : Pulse Width ≤ 300 µsec, Duty Cycle ≤ 2%.
[2] Independent of operating temperature.
[3] Pulse width limited by maximum junction temperature.

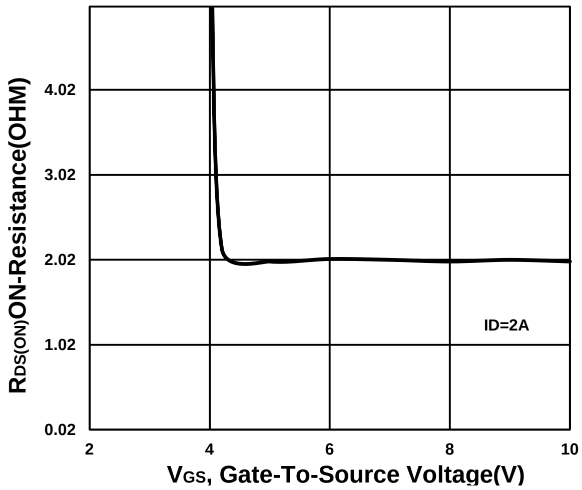
Output Characteristics



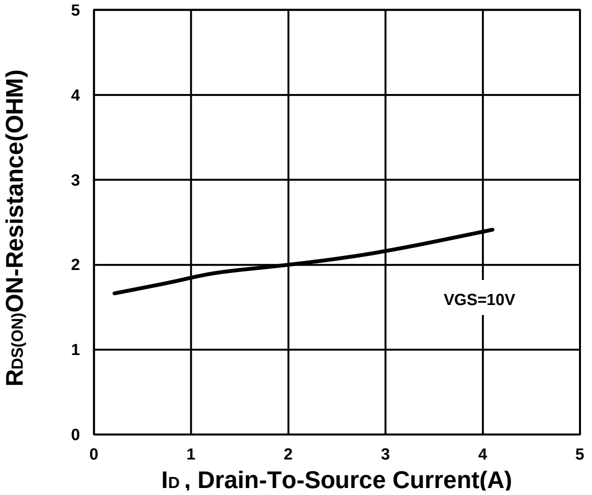
Transfer Characteristics



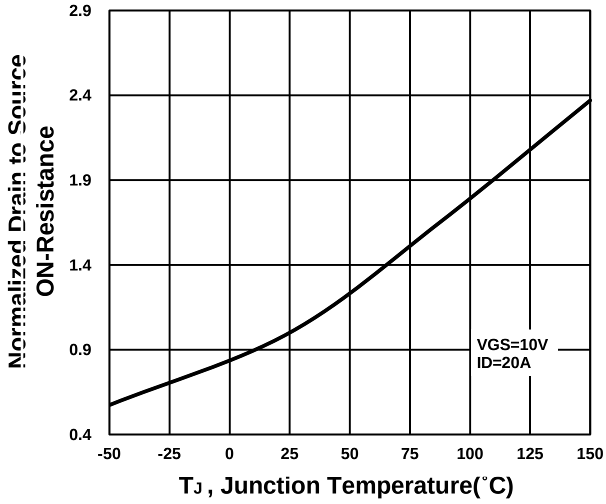
On-Resistance VS Gate-To-Source



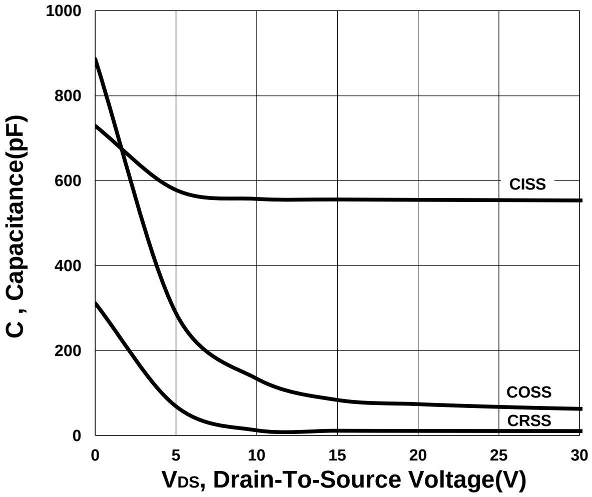
On-Resistance VS Drain Current

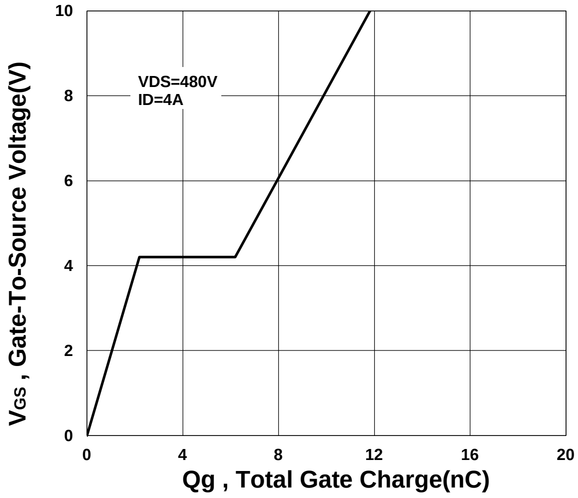


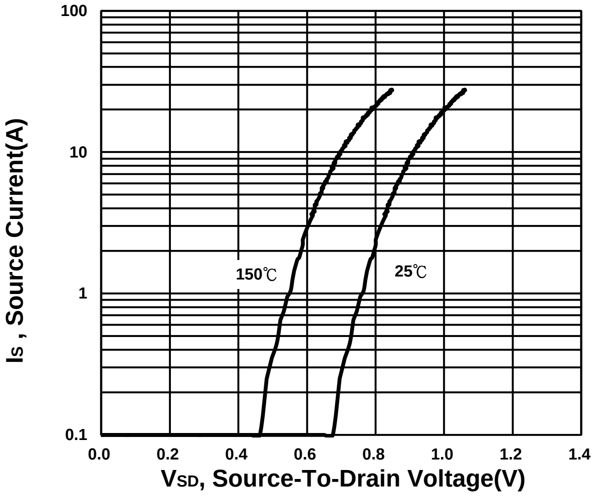
On-Resistance VS Temperature

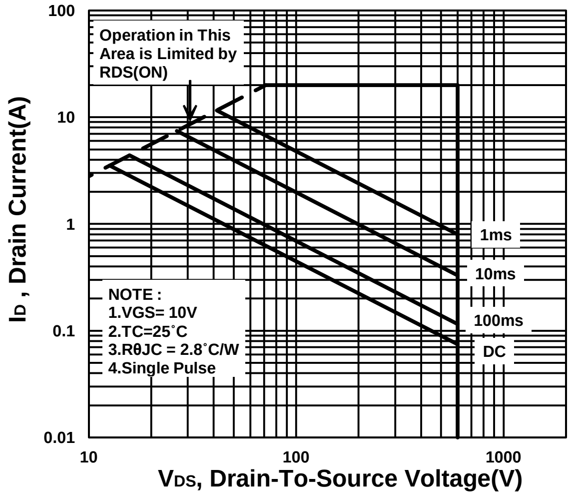


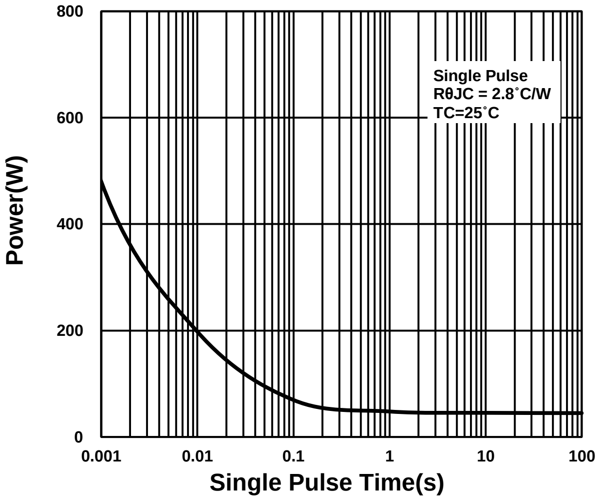
Capacitance Characteristic

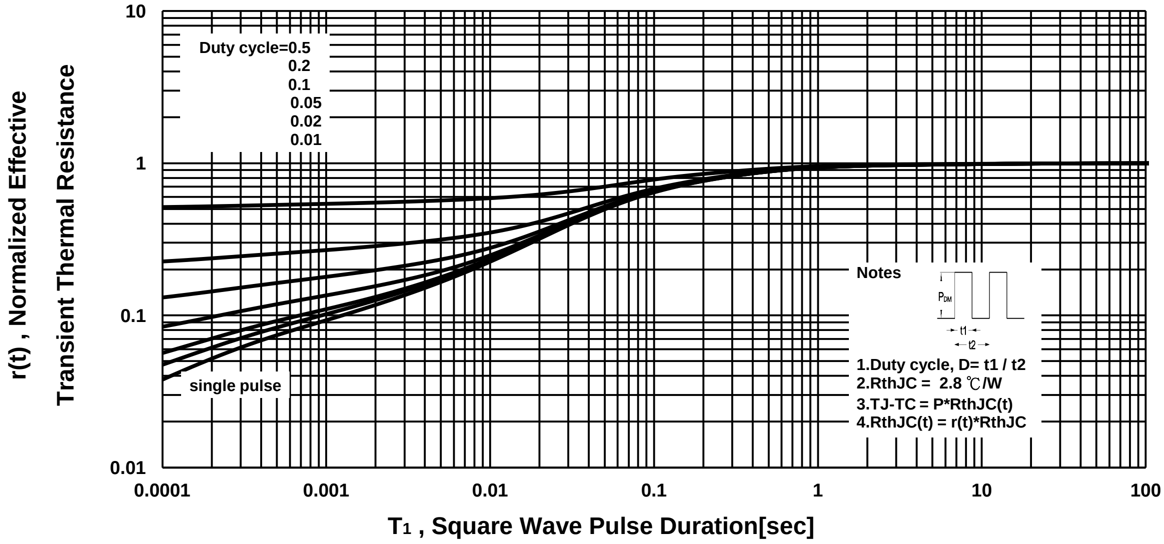



Gate charge Characteristics


Source-Drain Diode Forward Voltage


Safe Operating Area


Single Pulse Maximum Power Dissipation


Transient Thermal Response Curve