NIKO-SEM

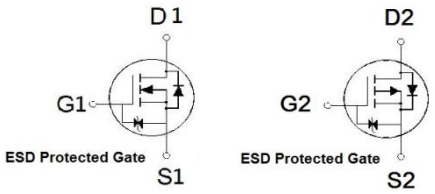
N- & P-Channel Enhancement Mode Field Effect Transistor

PZ607UZ
SOT-363
Halogen-Free & Lead-Free

RoHS Compliant

PRODUCT SUMMARY

	$V_{(BR)DSS}$	$R_{DS(ON)}$	I_D
N-Channel	20V	300mΩ	0.78A
P-Channel	-20V	520mΩ	-0.53A

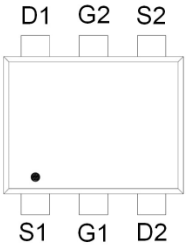


Features

- Pb−Free, Halogen Free and RoHS compliant.
- Low $R_{DS(on)}$ to Minimize Conduction Losses.
- Ohmic Region Good $R_{DS(on)}$ Ratio.
- Optimized Gate Charge to Minimize Switching Losses.
- ESD Protection − HBM Class : 1C.

Applications

- Protection Circuits Applications.
- Logic/Load Switch Circuits Applications.



G : GATE
D : DRAIN
S : SOURCE

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

PARAMETERS/TEST CONDITIONS		SYMBOL	N-Channel	P-Channel	UNITS
Drain-Source Voltage		V_{DS}	20	-20	V
Gate-Source Voltage		V_{GS}	±10	±12	V
Continuous Drain Current	T_A = 25 °C	I_D	0.78	-0.53	A
	T_A = 70 °C		0.62	-0.42	
Pulsed Drain Current[1]		I_{DM}	2.4	-1	
Power Dissipation	T_A = 25 °C	P_D	0.31	0.25	W
	T_A = 70 °C		0.2	0.16	
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]	$R_{\theta JA}$	N-ch		400	°C / W
Junction-to-Ambient[2]	$R_{\theta JA}$	P-ch		500	

[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)

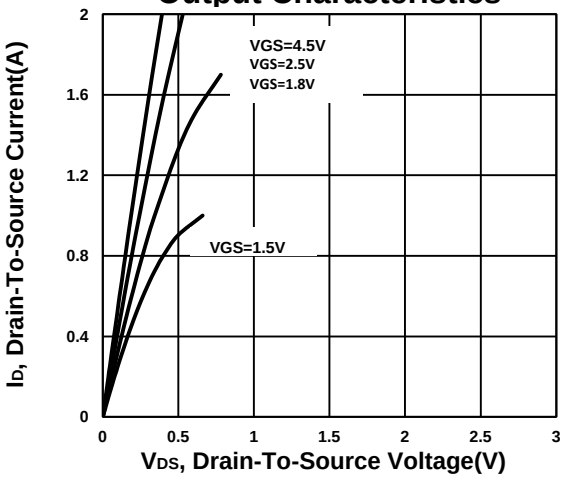
PARAMETER	SYMBOL	TEST CONDITIONS		LIMITS MIN	LIMITS TYP	LIMITS MAX	UNIT
STATIC							
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS} = 0V, I_D = 250µA	N-Ch	20			V
		V_{GS} = 0V, I_D = -250µA	P-Ch	-20			
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = 250µA	N-Ch	0.4	0.75	1	
		V_{DS} = V_{GS}, I_D = -250µA	P-Ch	-0.4	-0.96	-1.2	
Gate-Body Leakage	I_{GSS}	V_{DS} = 0V, V_{GS} = ±8V	N-Ch			±30	uA
		V_{DS} = 0V, V_{GS} = ±10V	P-Ch			±30	
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} = 16V, V_{GS} = 0V	N-Ch			1	µA
		V_{DS} = -16V, V_{GS} = 0V	P-Ch			-1	
		V_{DS} = 10V, V_{GS} = 0V, T_J = 55 °C	N-Ch			10	
		V_{DS} = -10V, V_{GS} = 0V, T_J = 55 °C	P-Ch			-10	
Drain-Source On-State Resistance[1]	$R_{DS(ON)}$	V_{GS} = 4.5V, I_D = 0.5A	N-Ch		177	300	mΩ
		V_{GS} = -4.5V, I_D = -0.45A	P-Ch		500	520	
		V_{GS} = 2.5V, I_D = 0.25A	N-Ch		226	400	
		V_{GS} = -2.5V, I_D = -0.1A	P-Ch		770	800	
Forward Transconductance[1]	g_{fs}	V_{DS} = 10V, I_D = 0.5A	N-Ch		5		S
		V_{DS} = -10V, I_D = -0.45A	P-Ch		1.6		

DYNAMIC							
Input Capacitance	C_{iss}	N-Channel V_{GS} = 0V, V_{DS} = 10V, f = 1MHz P-Channel V_{GS} = 0V, V_{DS} = -10V, f = 1MHz	N-Ch P-Ch		60 48		pF
Output Capacitance	C_{oss}		N-Ch P-Ch		19 18		
Reverse Transfer Capacitance	C_{rss}		N-Ch P-Ch		10 10		
Turn-On Delay Time[2]	$t_{d(on)}$	N-Channel V_{DS} = 10V, $I_D \cong$ 0.5A, V_{GS} = 4.5V, R_{GEN} = 5.1Ω P-Channel V_{DS} = -10V, $I_D \cong$ -0.45A, V_{GS} = -4.5V, R_{GEN} = 5.1Ω	N-Ch P-Ch		17 17		nS
Rise Time[2]	t_r		N-Ch P-Ch		36 30		
Turn-Off Delay Time[2]	$t_{d(off)}$		N-Ch P-Ch		86 76		
Fall Time[2]	t_f		N-Ch P-Ch		173 46		
SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS (T_J = 25 °C)							
Continuous Current	I_S		N-Ch P-Ch			0.25 -0.2	A
Forward Voltage[1]	V_{SD}	I_F = 0.5A, V_{GS} = 0V	N-Ch			1.2	V
		I_F = -0.45A, V_{GS} = 0V	P-Ch			-1.2	
Reverse Recovery Time	t_{rr}	I_F = 1A, dI_F/dt = 100A / μS	N-Ch P-Ch		111 46		nS
Reverse Recovery Charge	Q_{rr}	I_F = -1A, dI_F/dt = 100A / μS	N-Ch P-Ch		102 28		nC

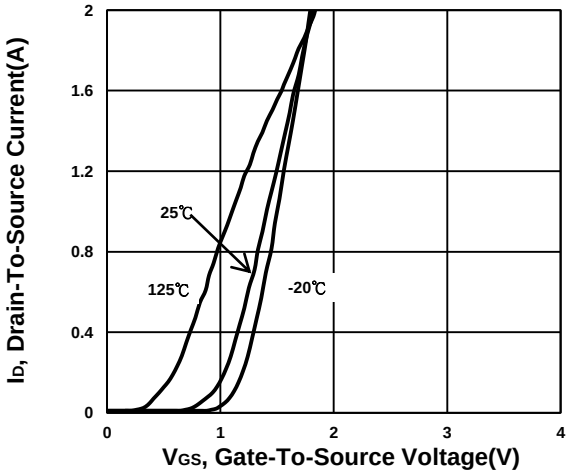
[1]Pulse test : Pulse Width ≤ 300 μsec, Duty Cycle ≤ 2%.
[2]Independent of operating temperature.

N-CHANNEL

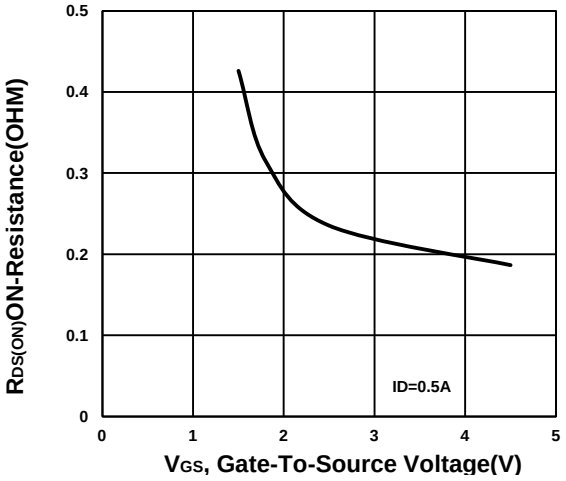
Output Characteristics



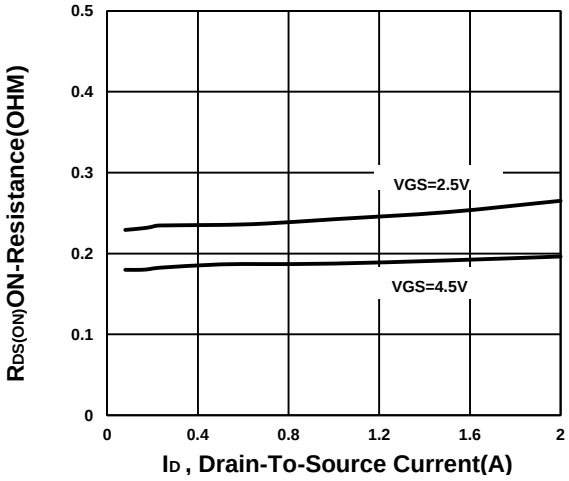
Transfer Characteristics



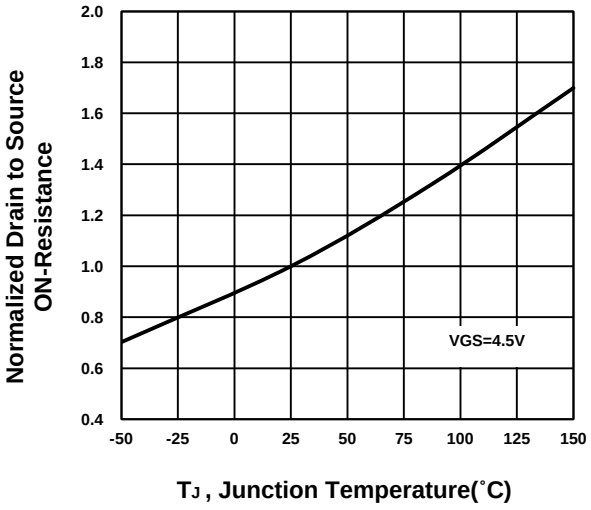
On-Resistance VS Gate-To-Source



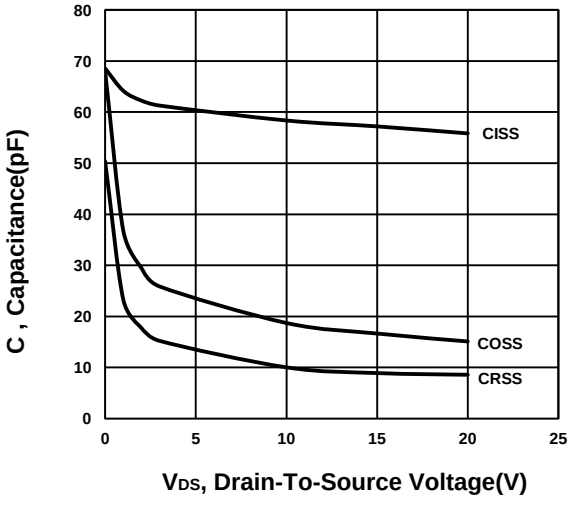
On-Resistance VS Drain Current



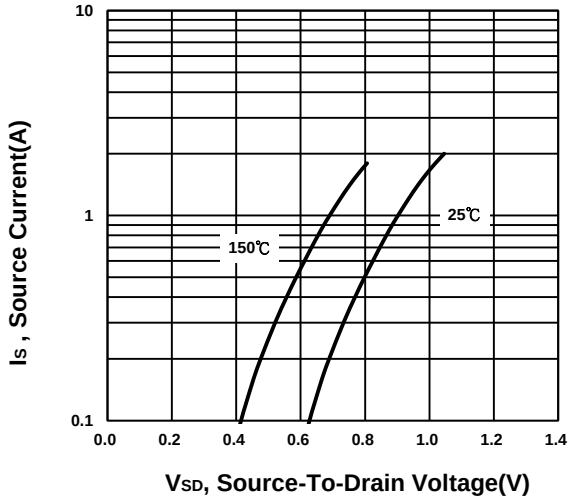
On-Resistance VS Temperature



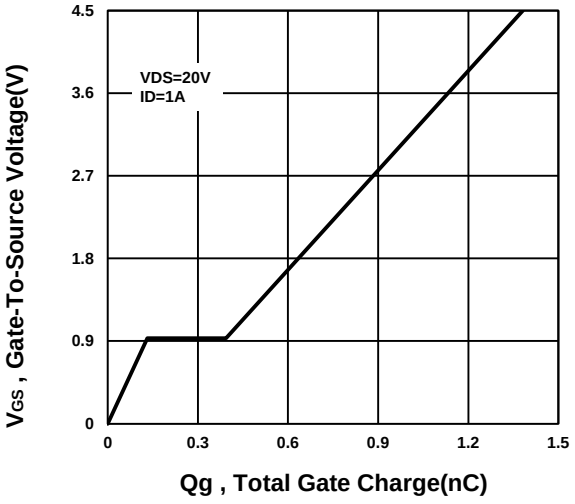
Capacitance Characteristic



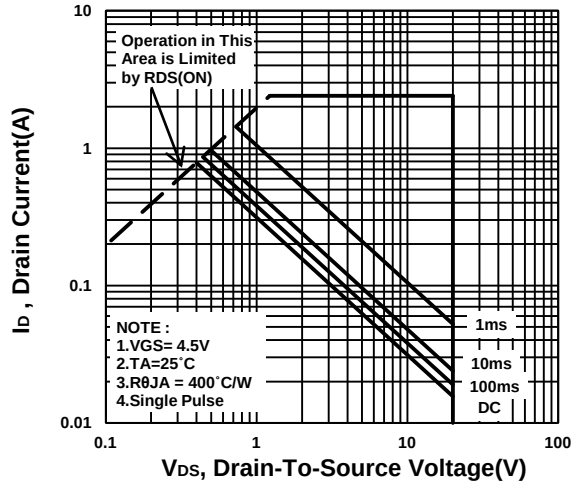
Source-Drain Diode Forward Voltage



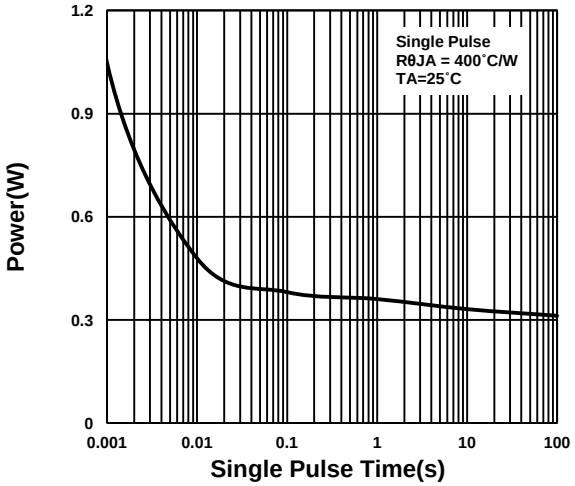
Gate charge Characteristics



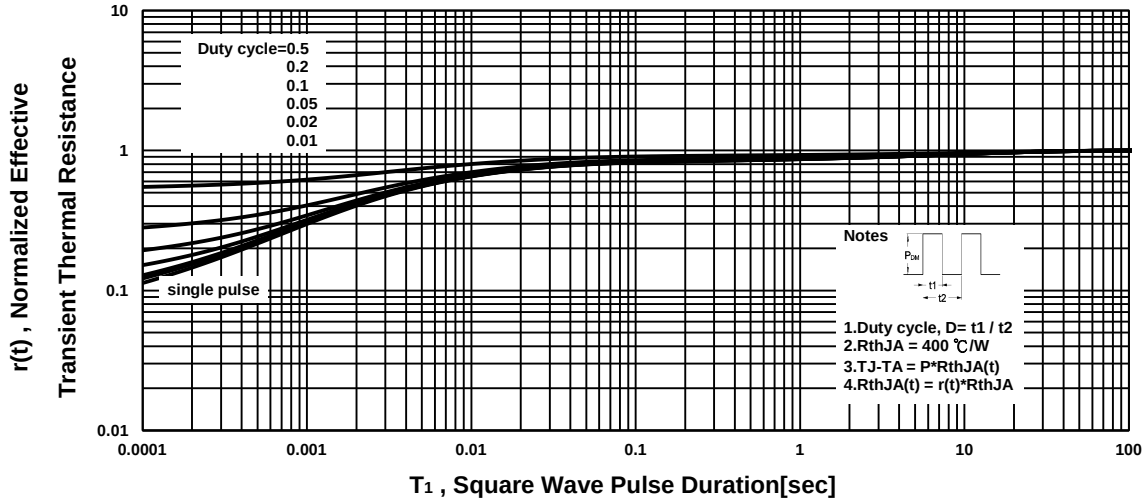
Safe Operating Area



Single Pulse Maximum Power Dissipation

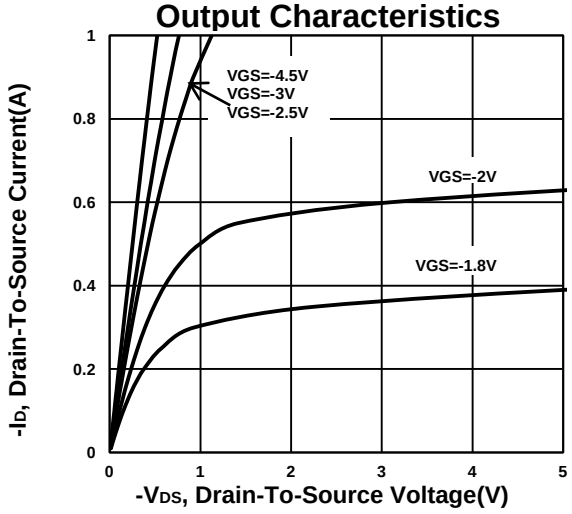


Transient Thermal Response Curve

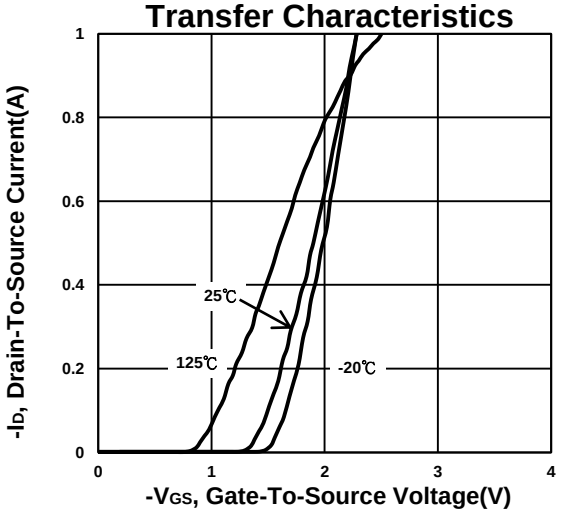


P-CHANNEL

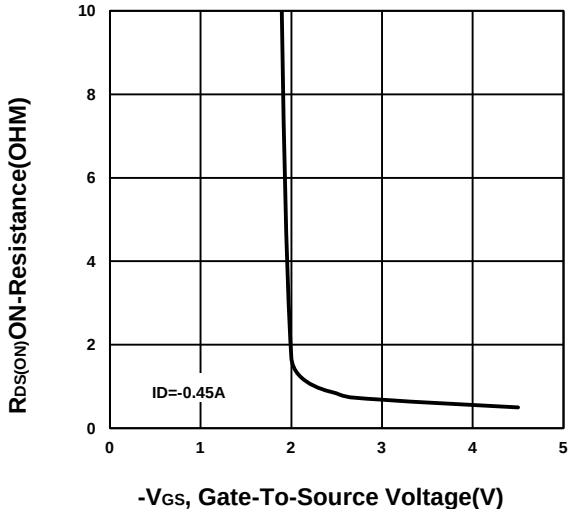
Output Characteristics



Transfer Characteristics



On-Resistance VS Gate-To-Source



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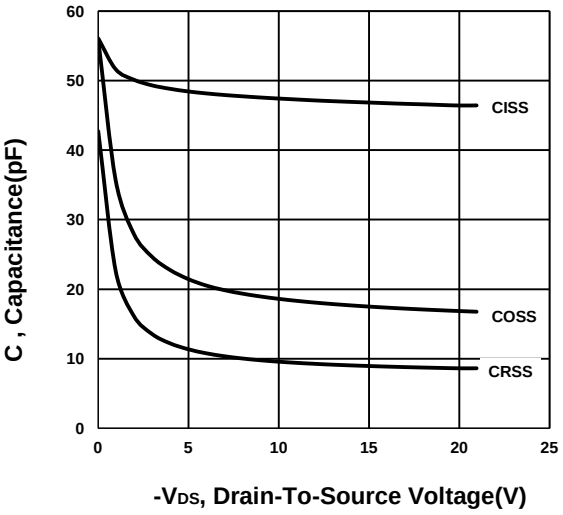

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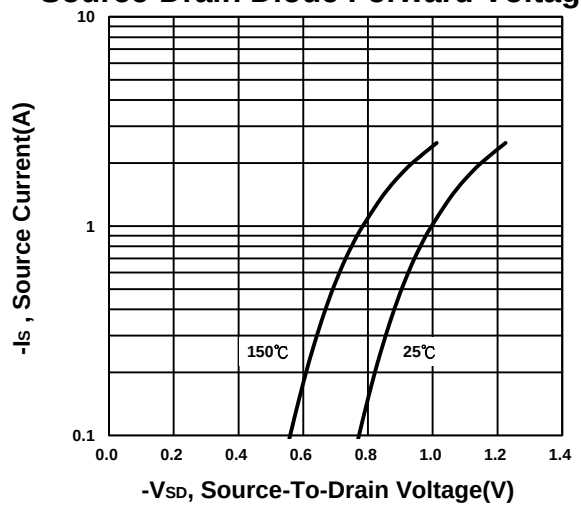
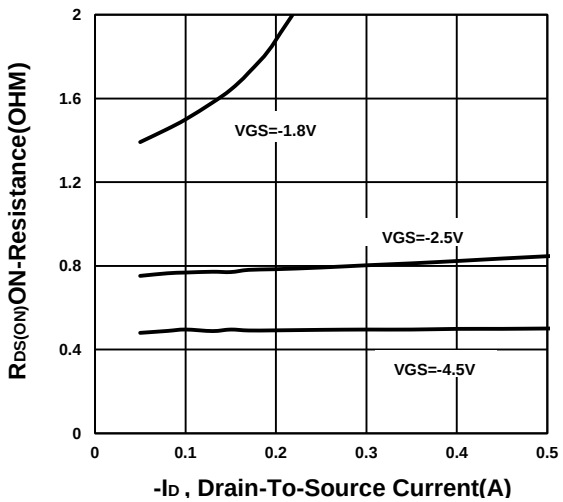
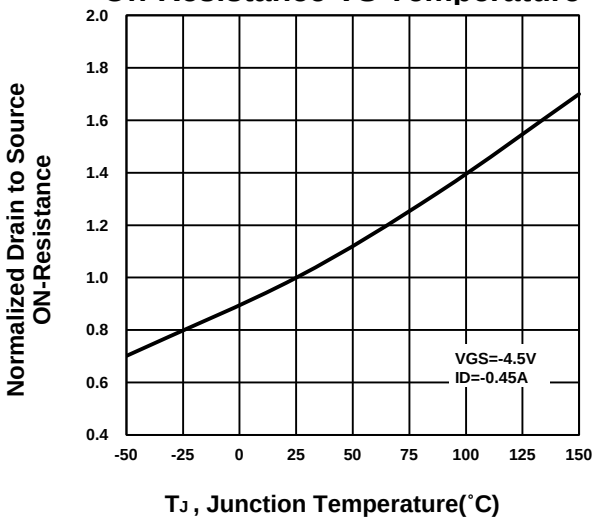


On-Resistance VS Drain Current



On-Resistance VS Temperature



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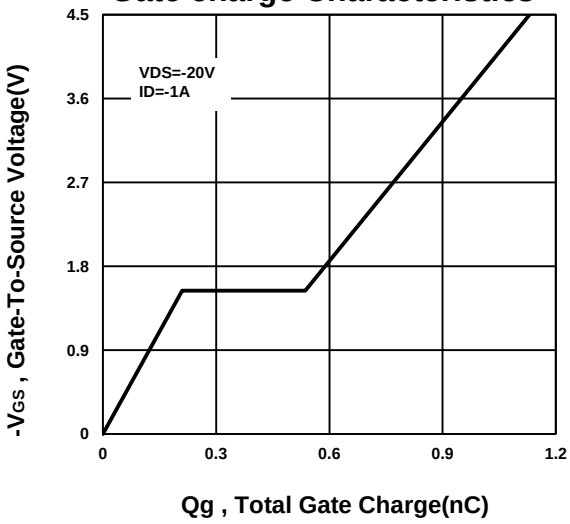

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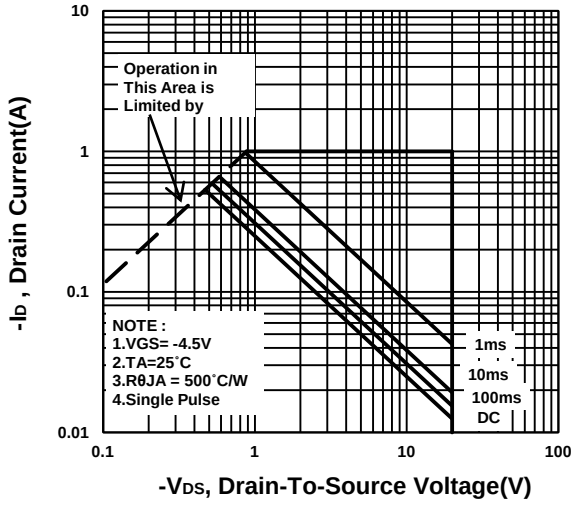

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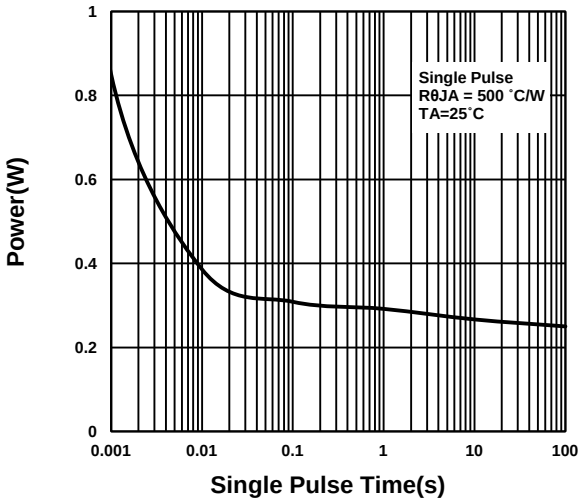

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