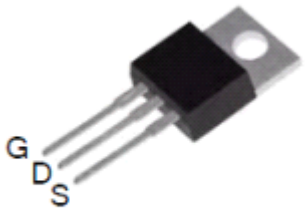
N-Channel MOSFETS

DESCRIPTION

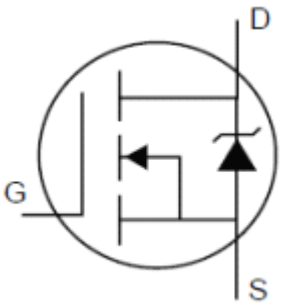
The OGFD 3205TR is the N-Channel logic enhancement mode Power field effect transistors are produced using high cell density trench technology. This high density process is especially tailored to minimize on-state resistance.

These devices are particularly suited for low voltage application such as cellular phone and notebook computer power management and other battery powered circuits where high-side switching and low in-line power loss are needed in a very small outline surface mount package.

V_{DS}	$R_{DS(ON)}$	I_D
55V	6.6mΩ	108A



TO-220
Not to Scale



Features:

- RoHS Compliant
- Low ON Resistance
- Low Gate Charge
- Peak Current vs Pulse Width Curve
- Inductive Switching Curves

Applications

- witching Application Systems
- Inverter systems
- DC Motor Control

Ordering Information

PART NUMBER	PACKAGE	BRAND
3205TR	TO-220	OGFD

Absolute Maximum Ratings (TC=25℃, unless otherwise noted)

Symbol	Parameter	3205TR	Units
V_{DSS}	Drain-to-Source Voltage	55	V
I_D	Continuous Drain Current	108	A
I_{DM}	Pulsed Drain Current@VG=10V	450	
P_D	Power Dissipation	150	W
	Derating Factor above 25℃	1.00	W/℃
V_{GS}	Gate-to-Source Voltage	± 20	V
E_{AS}	Single PulseAvalanche Energy (L=1mH, IAS=40A)C	780	mJ
dv/dt	Peak Diode Recovery dv/dt	5.0	V/ns
T_J and T_{STG}	Operating Junction and Storage Temperature Range	-55 to 175	℃

Thermal Resistance

Symbol	Parameter	Min.	Typ.	Max.	Units	Test Conditions
$R_{\theta JC}$	Junction-to-Case	--	--	0.65	℃/W	Water cooled heatsink, PD adjusted for a peak junction temperature of +175℃.
$R_{\theta JA}$	Junction-to-Ambient	--	--	62		1 cubic foot chamber, free air.

OFF Characteristics TJ=25℃ unless otherwise specified

Symbol	Parameter	Min.	Typ.	Max.	Units	Test Conditions
B_{VDSS}	Drain-to-Source Breakdown Voltage	5	--	--	V	V_{GS}=0, I_D=250uA
I_{GSS}	Gate-to-Source Forward Leakage	--	--	±100	nA	V_{DS}=0V, V_{GS}=±20V
I_{DSS}	Zero Gate Voltage Drain Current	--	--	1	uA	V_{DS}=55V, V_{GS}=0V

ON Characteristics TJ=25℃ unless otherwise specified

Symbol	Parameter	Min.	Typ.	Max	Units	Test Conditions
$R_{DS(ON)}$	Static Drain-to-Source On-Resistance	--	6.6	8	mΩ	V_{GS}=10V,I_D=62A
$V_{GS(TH)}$	Gate Threshold Voltage, Figure 12.	3	--	5	V	V_{DS}=V_{GS}, I_D=250uA
G_{fs}	Forward Transconductance	--	81	--	V	V_{DS}=15V, I_D=58A

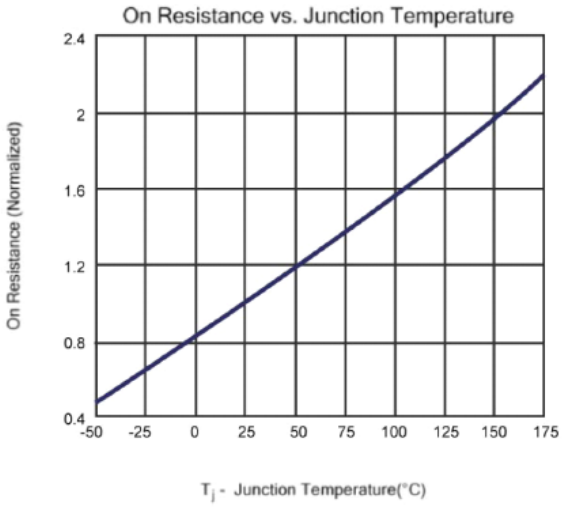
Dynamic Characteristics Essentially independent of operating temperature

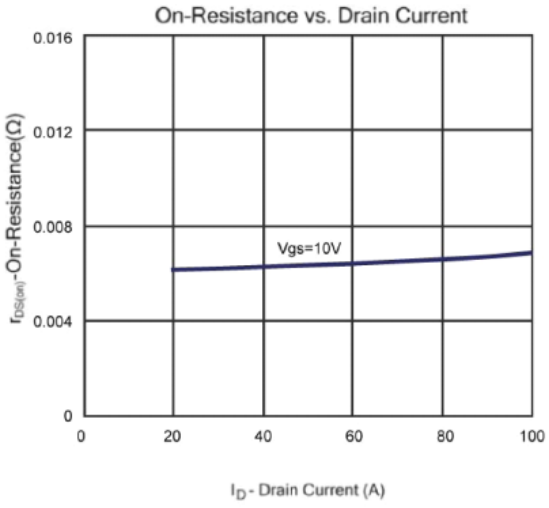
Symbol	Parameter	Min.	Typ.	Max.	Units	Test Conditions
C_{iss}	Input Capacitance	--	6330	--	pF	V_{DS}=15V,V_{GS}=0V, f=1MHZ
C_{oss}	Output Capacitance	--	495	--		
C_{rss}	Reverse Transfer Capacitance	--	154	--		
Q_g	Total Gate Charge	--	28	--	nC	V_{DS}=44V, V_{GS}=4.5V, I_D=62A
Q_{gs}	Gate-to-Source Charge	--	41	--		
Q_{gd}	Gate-to-Drain (“Miller”) Charge	--	18	--		

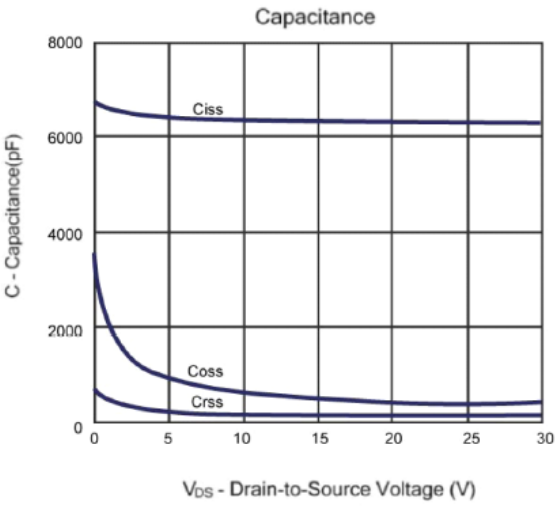
Resistive Switching Characteristics Essentially independent of operating temperature

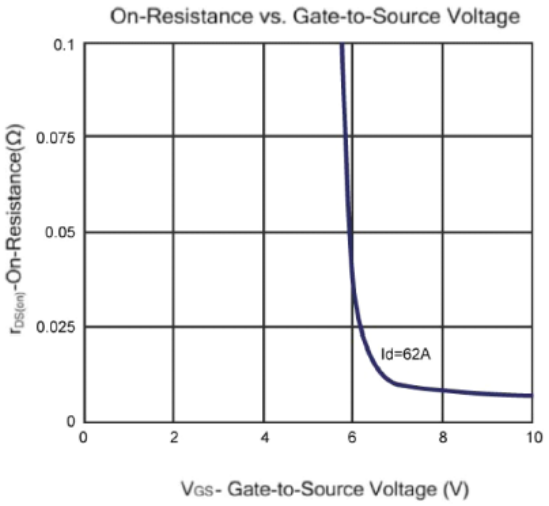
Symbol	Parameter	Min.	Typ.	Max.	Units	Test Conditions
$T_{d(ON)}$	Turn-on Delay Time		55		ns	V_{DS}=28V, R_L=28Ω V_{GS}=10V, R_G=6Ω
T_{rise}	Rise Time		12			
$T_{d(OFF)}$	Turn-Off Delay Time		90			
T_{fall}	Fall Time		16			

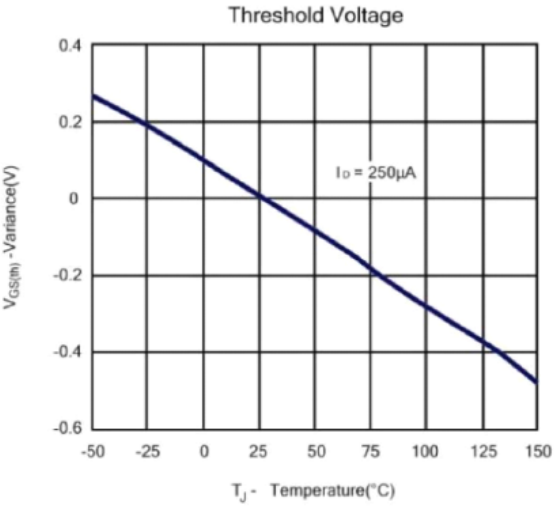
Typical Characteristics (T_J =25℃ Noted)

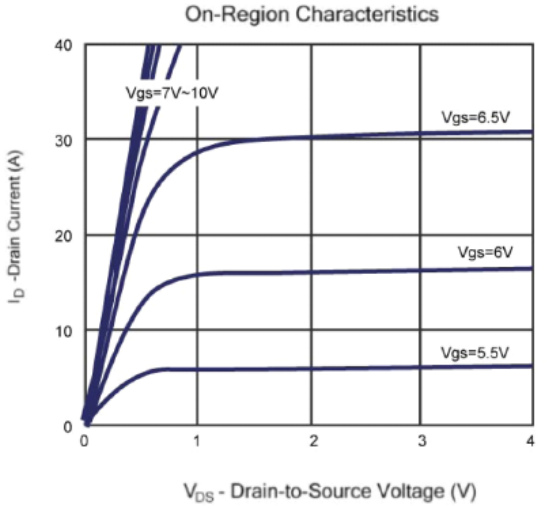












Typical Characteristics (T_J =25℃ Noted)