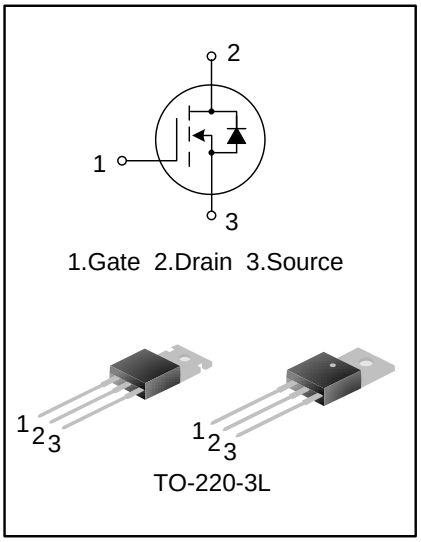
110A, 55V, N-Channel MOSFET

General Description

GGVD3205T is an N-channel enhancement mode power MOS field effect transistor. The improved planar stripe cell and the improved guard ring terminal have been especially tailored to minimize on-state resistance, provide superior switching performance, and withstand high energy pulses in the avalanche and commutation mode.



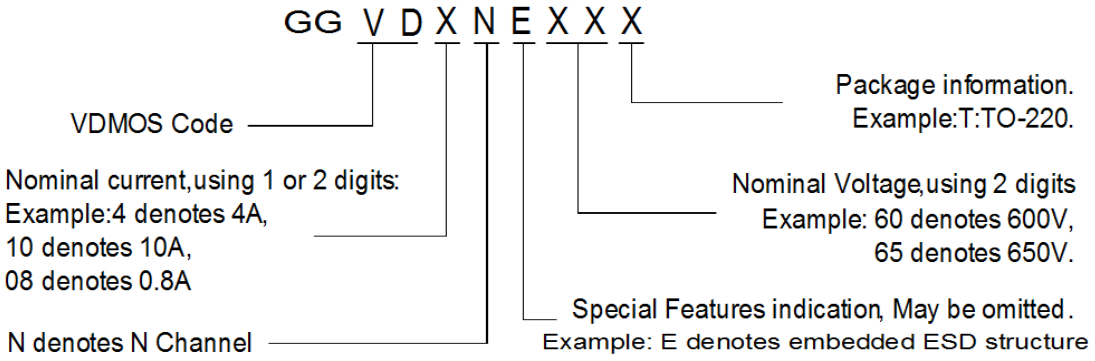
Features

- 110A, 55V
- $R_{DS(on)}$ (typ) =7.5mΩ@V_{GS}=10V
- Low gate charge
- Low Crss
- Fast switching
- Improved dv/dt capability

Applications

- AC-DC power supplies
- DC-DC converters
- H-bridge PWM motor drivers

Nomenclature



Ordering Information

Part No.	Package	Marking	Material	Packing
GGVD3205T	TO-220-3L	GGVD3205T	Pb free	Tube

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Absolute Maximum Ratings (T_C=25°C unless otherwise noted)

Characteristics		Symbol	Rating	Unit
Drain-Source Voltage		V_{DS}	55	V
Gate-Source Voltage		V_{GS}	±20	V
Drain Current	T_C=25°C	I_D	110	A
	T_C=100°C		80	
Drain Current Pulsed		I_{DM}	390	A
Power Dissipation(T_C=25°C)		P_D	200	W
-Derate above 25°C			1.3	W/°C
Single Pulsed Avalanche Energy(Note 1)		E_{AS}	1050	mJ
Operation Junction Temperature Range		T_J	-55～+150	°C
Storage Temperature Range		T_{stg}	-55～+150	°C

Thermal Characteristics

Characteristics	Symbol	Rating	Unit
Thermal Resistance, Junction-to-Case	$R_{\theta JC}$	0.75	°C/W
Thermal Resistance, Junction-to-Ambient	$R_{\theta JA}$	62	°C/W

Electrical Characteristics (T_C=25°C unless otherwise noted)

Characteristics	Symbol	Test conditions	Min.	Typ.	Max.	Unit
Drain -Source Breakdown Voltage	B_{VDSS}	V_{GS}=0V, I_D=250μA	55	--	--	V
Drain-Source Leakage Current	I_{DSS}	V_{DS}=55V, V_{GS}=0V	--	--	25	μA
Gate-Source Leakage Current	I_{GSS}	V_{GS}=±20V, V_{DS}=0V	--	--	±100	nA
Gate Threshold Voltage	$V_{GS(th)}$	V_{GS}= V_{DS}, I_D=250μA	2.8	--	4.8	V
Static Drain- Source On State Resistance	$R_{DS(on)}$	V_{GS}=10V, I_D=55A	--	7.5	8.0	mΩ
Input Capacitance	C_{iss}	V_{DS}=25V, V_{GS}=0V, f=1.0MHz	--	3247	--	pF
Output Capacitance	C_{oss}		--	781	--	
Reverse Transfer Capacitance	C_{rss}		--	211	--	
Turn-on Delay Time	$t_{d(on)}$	V_{DD}=28V, V_{GS}=25V, R_G=50Ω	--	14	--	ns
Turn-on Rise Time	t_r		--	101	--	
Turn-off Delay Time	$t_{d(off)}$		--	50	--	
Turn-off Fall Time	t_f		--	65	--	
Total Gate Charge	Q_g	V_{DS}=44V, I_D=62A, V_{GS}=10V	--	--	146	nC
Gate-Source Charge	Q_{gs}		--	--	35	
Gate-Drain Charge	Q_{gd}		--	--	54	

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Source-Drain Diode Ratings and Characteristics

Characteristics	Symbol	Test conditions	Min.	Typ.	Max.	Unit
Continuous Source Current	I_S	Integral Reverse P-N Junction Diode in the MOSFET	--	--	110	A
Pulsed Source Current	I_{SM}		--	--	390	
Diode Forward Voltage	V_{SD}	I_S=110A, V_{GS}=0V	--	--	1.3	V
Reverse Recovery Time	T_{rr}	I_S=110A, V_{GS}=0V, dI_F/dt=100A/μs	--	69	104	ns
Reverse Recovery Charge	Q_{rr}		--	143	215	μC

Notes:

1. L=138μH, I_{AS}=110A, V_{DD}=25V, R_G=0Ω,starting T_J=25°C;
2. Pulse Test: Pulse width ≤300μs,Duty cycle≤2%;
3. Essentially independent of operating temperature.

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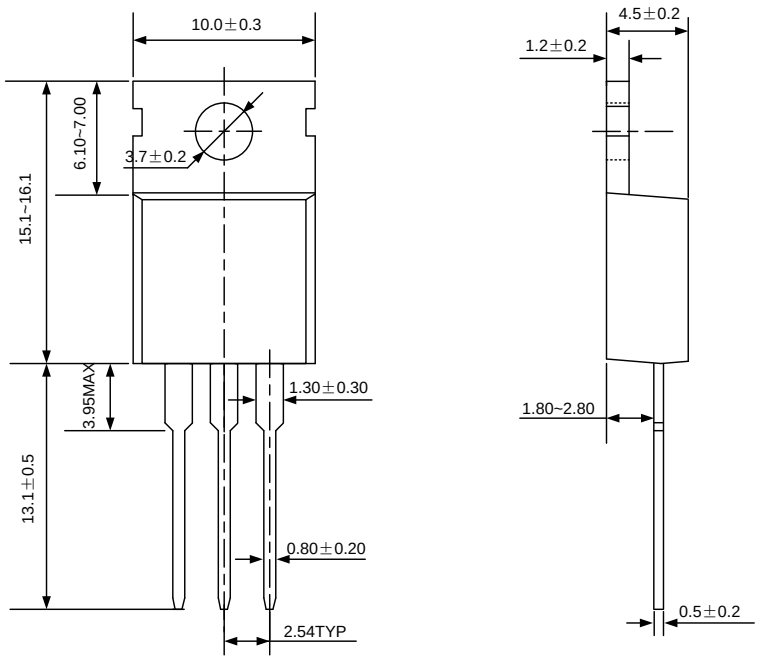
Package Outline

TO-220-3L(1) **Unit: mm**



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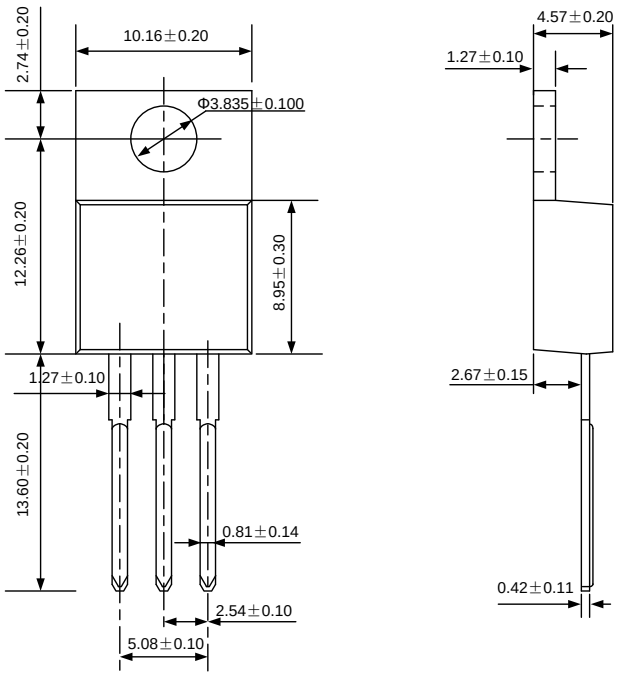
Package Outline

TO-220-3L(2) **Unit: mm**



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