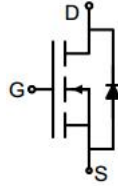


N-Channel Enhancement Mode Power MOSFET

Description The GT105N10F uses advanced trench technology to provide excellent $R_{DS(ON)}$, low gate charge. It can be used in a wide variety of applications.		 Schematic diagram  TO-220F	
General Features • V_{DS} 100V • I_D (at $V_{GS} = 10V$) 25A • $R_{DS(ON)}$ (at $V_{GS} = 10V$) < 10.5mΩ • $R_{DS(ON)}$ (at $V_{GS} = 4.5V$) < 15mΩ • 100% Avalanche Tested • RoHS Compliant			
Application • Synchronous Rectification in SMPS or LED Driver • UPS • Motor Control • BMS • High Frequency Circuit			
Device	Package	Marking	Packaging
GT105N10F	TO-220F	GT105N10	50pcs/Tube

Absolute Maximum Ratings $T_C = 25^\circ\text{C}$, unless otherwise noted

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DSS}	100	V
Continuous Drain Current	I_D	25	A
Pulsed Drain Current (note1)	I_{DM}	100	A
Gate-Source Voltage	V_{GSS}	± 20	V
Power Dissipation	P_D	20.8	W
Single pulse avalanche energy (note3)	E_{AS}	72	mJ
Operating Junction and Storage Temperature Range	T_J, T_{stg}	-55 To 150	$^\circ\text{C}$

Thermal Resistance

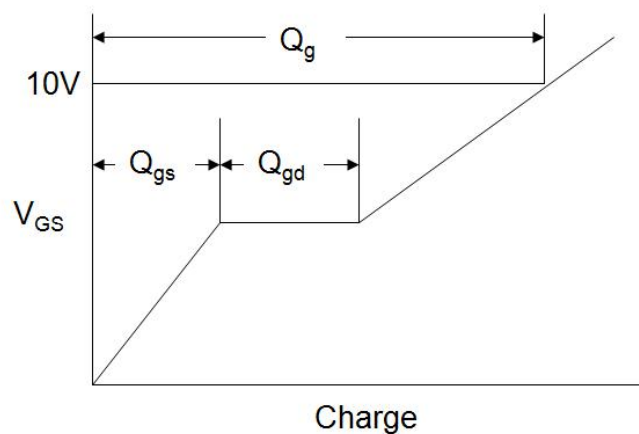
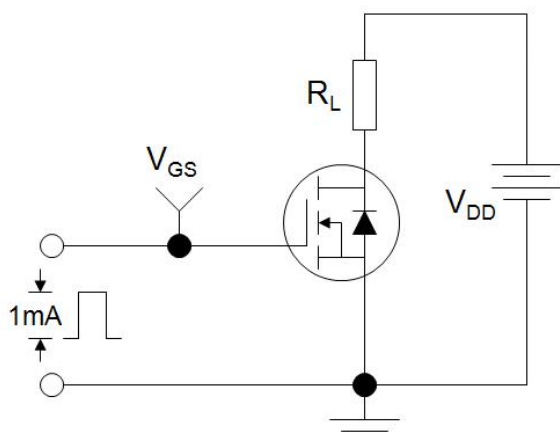
Parameter	Symbol	Value	Unit
Thermal Resistance Junction-Case	R_{thJC}	6	$^\circ\text{C/W}$
Thermal Resistance Junction-Ambient	R_{thJA}	60	$^\circ\text{C/W}$

Specifications T _J = 25°C, unless otherwise noted						
Parameter	Symbol	Test Conditions	Value			Unit
			Min.	Typ.	Max.	
Static Parameters						
Drain-Source Breakdown Voltage	V _{(BR)DSS}	V _{GS} = 0V, I _D = 250μA	100	--	--	V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = 100V, V _{GS} = 0V, T _J = 25°C	--	--	1	μA
Gate-Source Leakage	I _{GSS}	V _{GS} = ±20V	--	--	±100	nA
Gate-Source Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = 250μA	1.0	1.7	2.5	V
Drain-Source On-Resistance	R _{DS(on)}	V _{GS} = 10V, I _D = 11A	--	8	10.5	mΩ
		V _{GS} = 4.5V, I _D = 11A	--	10	15	
Forward Transconductance	g _{FS}	V _{DS} =5V,I _D =20A	--	58	--	S
Dynamic Parameters						
Input Capacitance	C _{iss}	V _{GS} = 0V, V _{DS} = 50V, f = 1.0MHz	--	1587	--	pF
Output Capacitance	C _{oss}		--	684	--	
Reverse Transfer Capacitance	C _{rss}		--	13	--	
Total Gate Charge	Q _g	V _{DD} = 50V, I _D = 30A, V _{GS} = 10V	--	54	--	nC
Gate-Source Charge	Q _{gs}		--	10	--	
Gate-Drain Charge	Q _{gd}		--	14	--	
Turn-on Delay Time	t _{d(on)}	V _{DD} = 50V, I _D = 30A, R _G = 1.6Ω	--	13	--	ns
Turn-on Rise Time	t _r		--	10	--	
Turn-off Delay Time	t _{d(off)}		--	30	--	
Turn-off Fall Time	t _f		--	8	--	
Drain-Source Body Diode Characteristics						
Continuous Body Diode Current	I _S	T _C = 25°C	--	--	22	A
Body Diode Voltage	V _{SD}	T _J = 25°C, I _{SD} = 35A, V _{GS} = 0V	--	--	1.2	V
Reverse Recovery Chrage	Q _{rr}	IF=30A, di/dt=100A/us	--	95	--	nC
Reverse Recovery Time	T _{rr}		--	45	--	ns

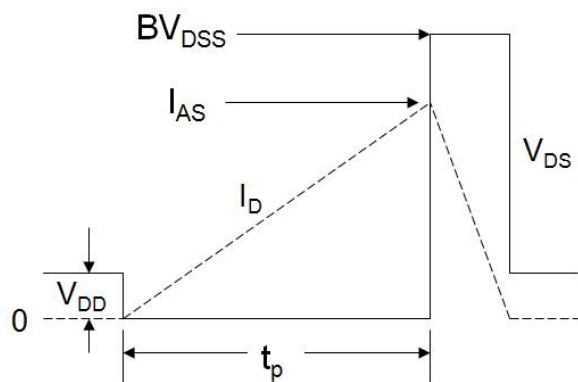
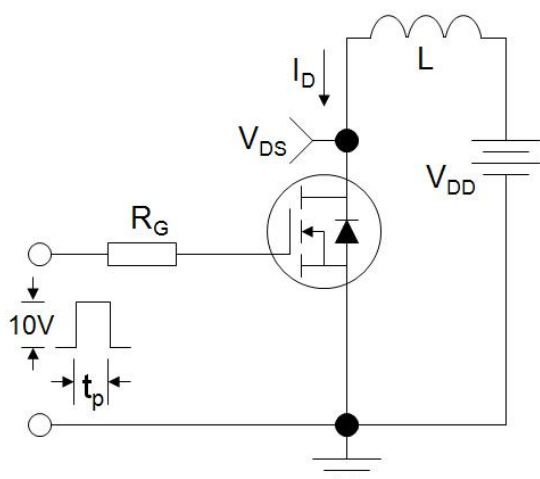
Notes

1. Repetitive Rating: Pulse width limited by maximum junction temperature
2. Identical low side and high side switch with identical R_G
3. EAS condition : $T_J=25, V_{DD}=50V, V_G=10V, L=0.5mH, R_g=25\Omega$

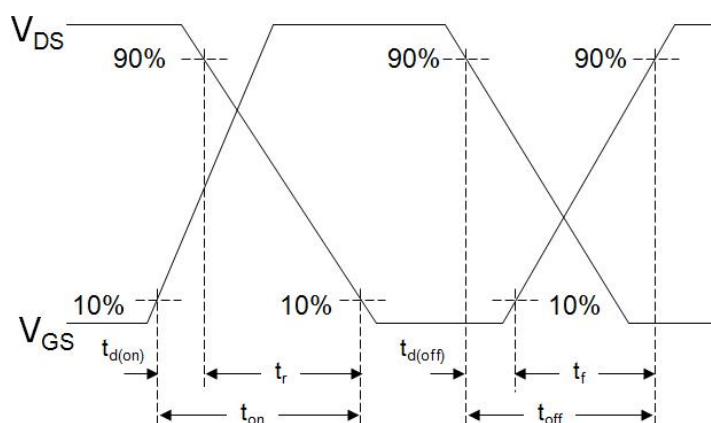
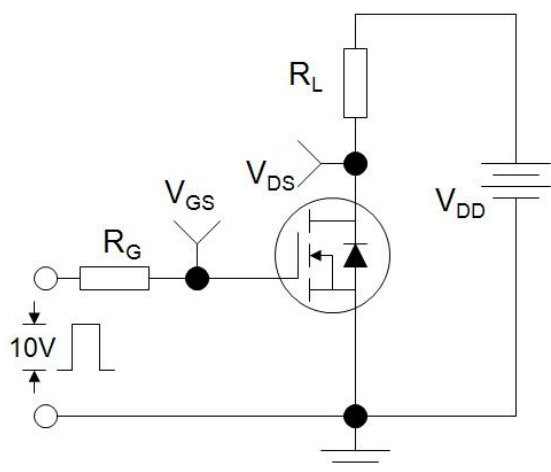
Gate Charge Test Circuit



EAS Test Circuit



Switch Time Test Circuit



Typical Characteristics $T_J = 25^\circ\text{C}$, unless otherwise noted

Figure 1. Output Characteristics

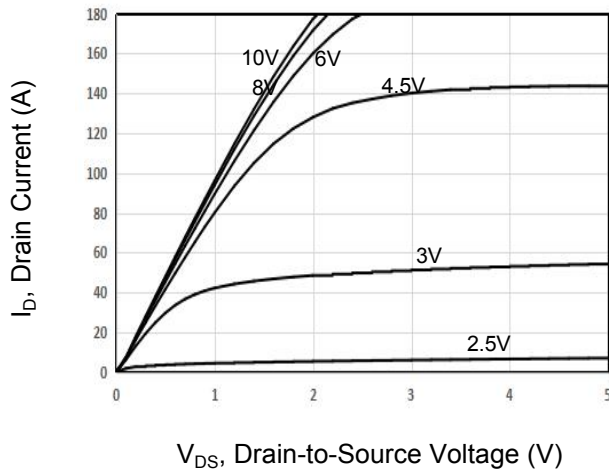


Figure 2. Transfer Characteristics

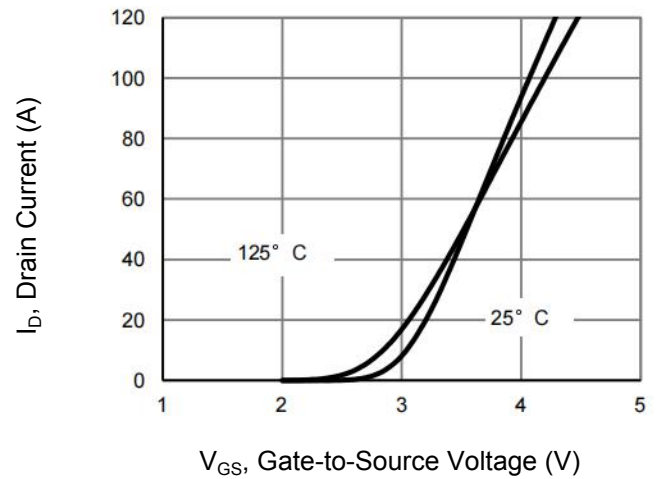


Figure 3. $R_{DS(on)}$ -Drain Current

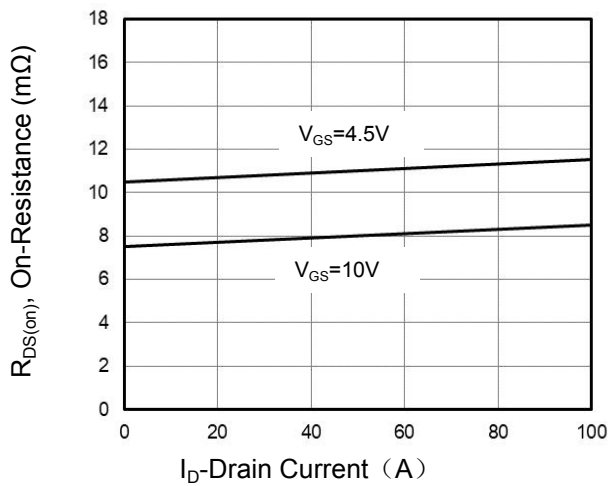


Figure 4. Gate Charge

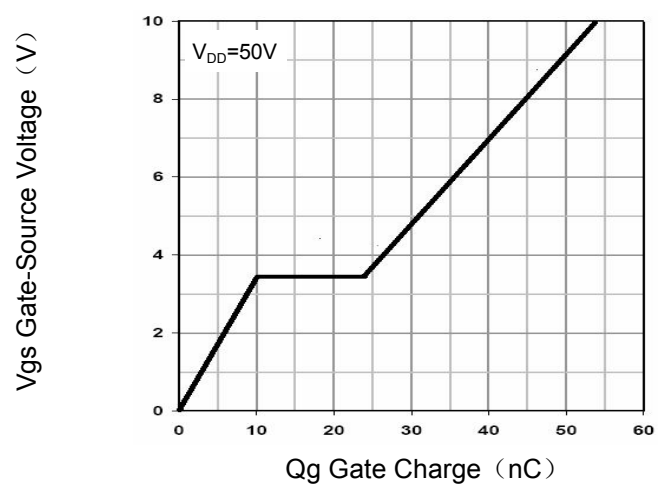


Figure 5. Capacitance vs V_{ds}

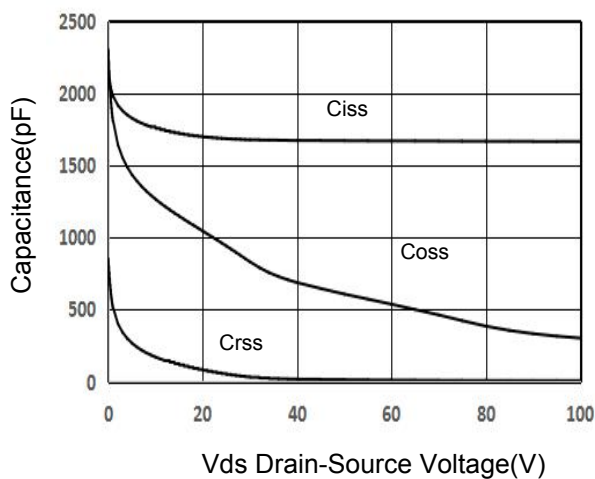
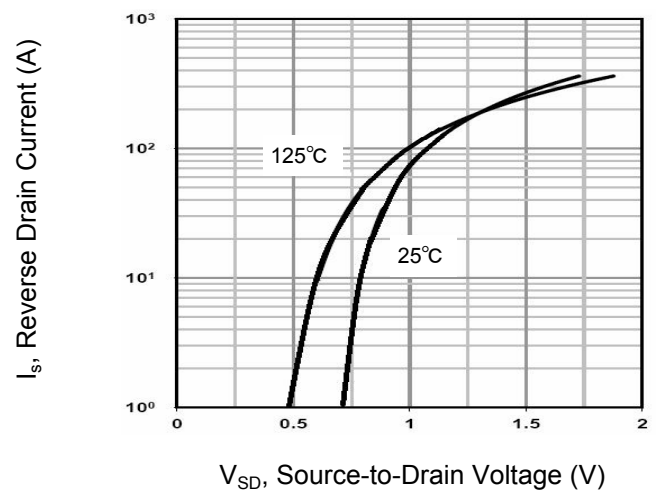


Figure 6. Source-Drain Diode Forward



Typical Characteristics $T_J = 25^\circ\text{C}$, unless otherwise noted

Figure 7. Drain-Source On-Resistance

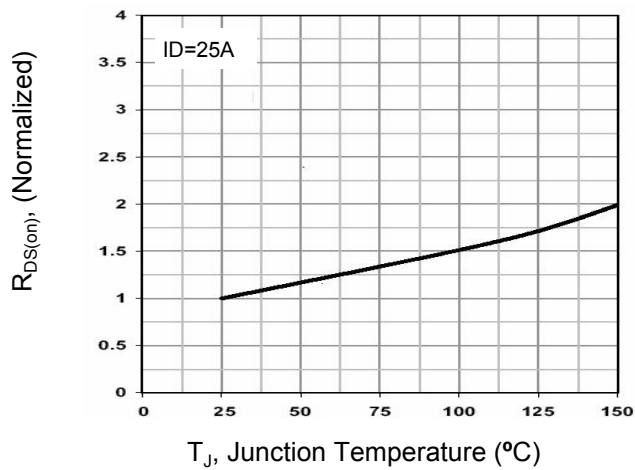


Figure 8. Safe Operation Area

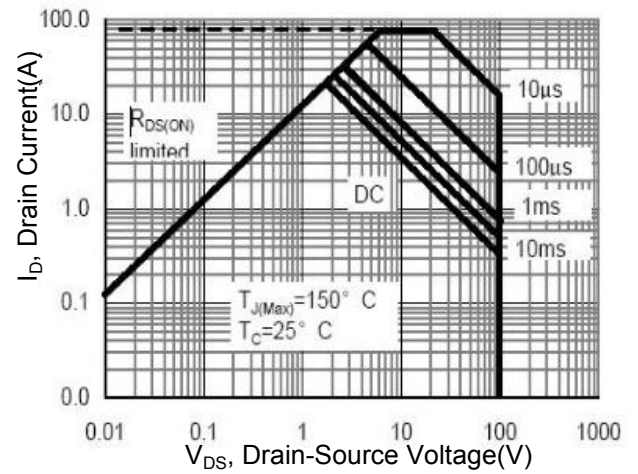
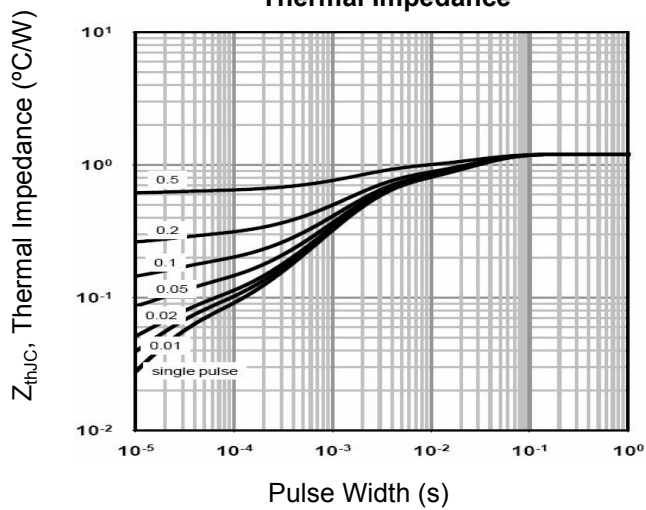
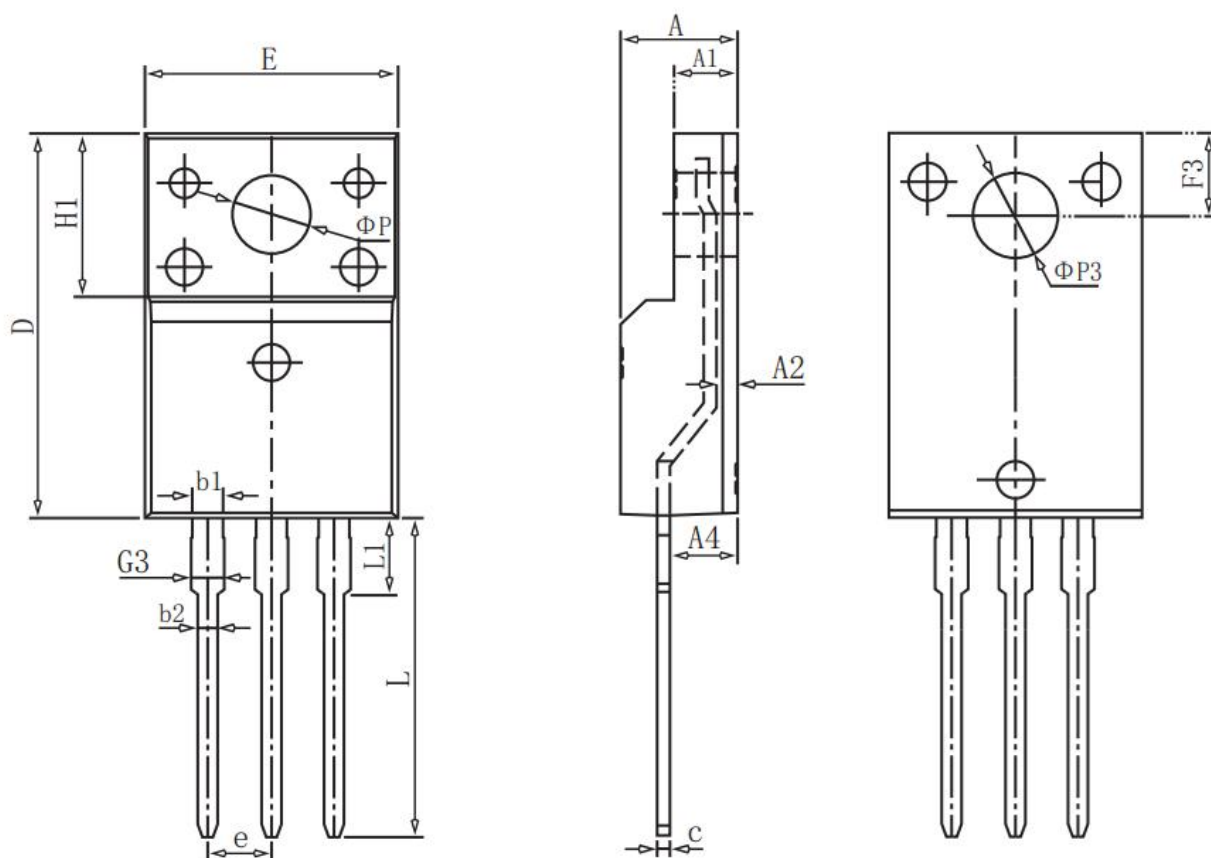


Figure 9. Normalized Maximum Transient Thermal Impedance



TO-220F Package Information



COMMON DIMENSIONS

SYMBOL	mm		
	MIN	NOM	MAX
E	10.00	10.20	10.40
A	4.50	4.70	4.90
A1	2.34	2.54	2.74
A2	0.65	0.85	1.30
A4	2.55	2.75	2.95
c	0.40	0.50	0.65
D	15.57	15.87	16.17
H1	6.70REF		
e	2.54BSC		
ΦP	3.183REF		
L	12.68	12.98	13.28
L1	3.25	3.45	3.65
$\Phi P3$	3.45REF		
F3	3.10	3.30	3.50
G3	1.10	1.30	1.50
b1	1.05	1.20	1.35
b2	0.70	0.80	0.92