

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
100V	8.0m Ω @10V	60A
	9.6m Ω @4.5V	

Feature

- Split Gate Trench Technology
- Low $R_{DS(ON)}$
- Low Gate Charge
- Low Gate Resistance
- 100% UIS Tested

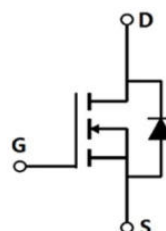
Application

- Power Switching Application
- Motor Driving
- Power Management

TO-220F



Schematic diagram



Package Marking and Ordering Information

Part Number	Package	Marking	Packing	Reel Size	Tape Width	Qty
GPT080N10LTC	TO-220F	T080N10L	Tube	NA	NA	50pcs

ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$ unless otherwise noted)

Parameter		Symbol	Value	Unit
Drain-Source Voltage		V _{DS}	100	V
Gate-Source Voltage		V _{GS}	±20	V
Continuous Drain Current ¹	T _C = 25°C	I _D	60	A
	T _C = 100°C		37	
Pulsed Drain Current ²		I _{DM}	240	A
Single Pulsed Avalanche Current ³		I _{AS}	26	A
Single Pulsed Avalanche Energy ³		E _{AS}	164	mJ
Power Dissipation ⁵	T _C = 25°C	P _D	30.5	W
Thermal Resistance from Junction to Ambient ⁶		R _{θJA}	55	°C /W
Thermal Resistance from Junction to Case		R _{θJC}	4.1	°C /W
Junction Temperature		T _J	150	°C
Storage Temperature		T _{STG}	-55~ +150	°C

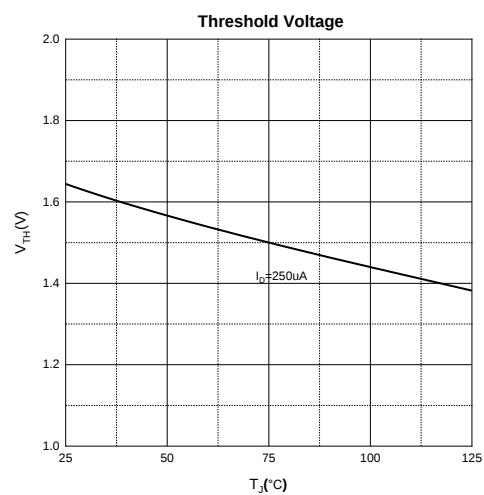
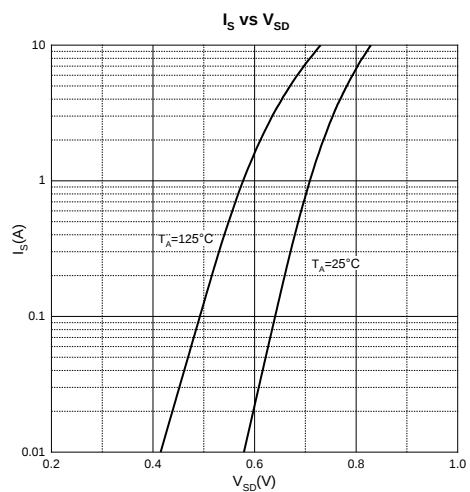
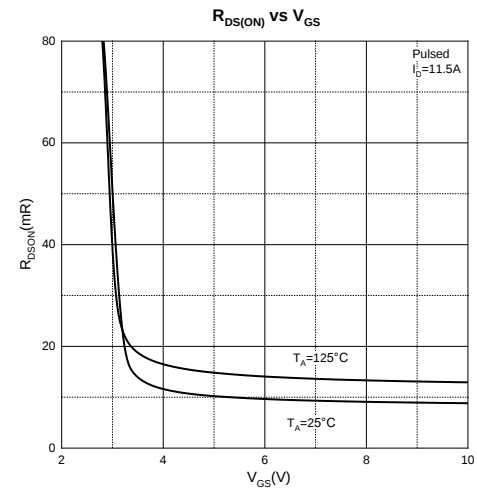
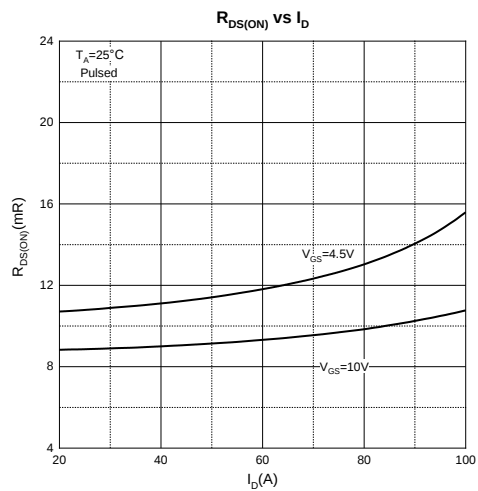
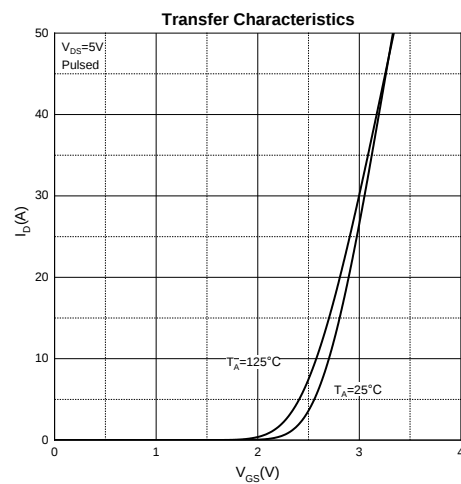
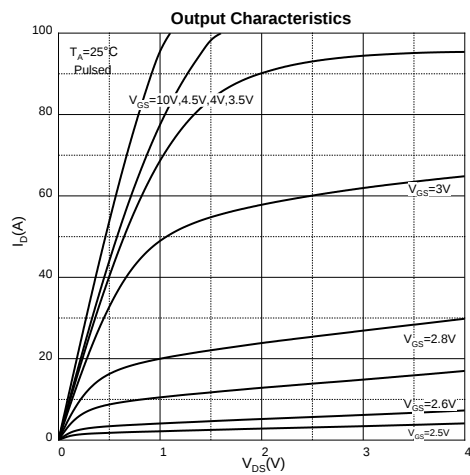
MOSFET ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ unless otherwise noted)

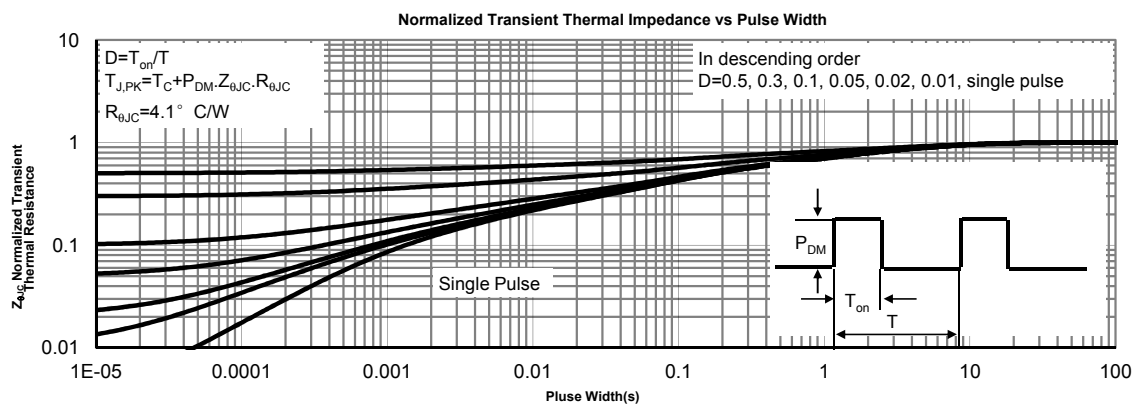
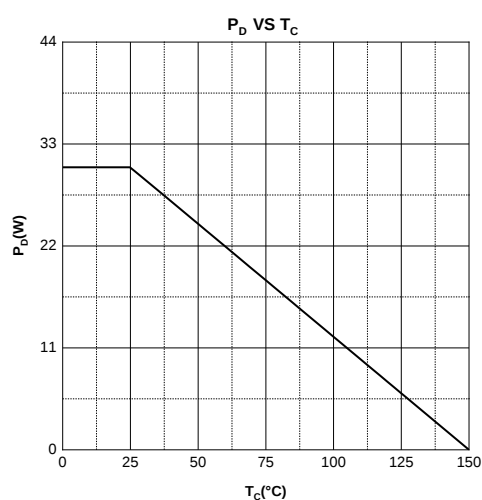
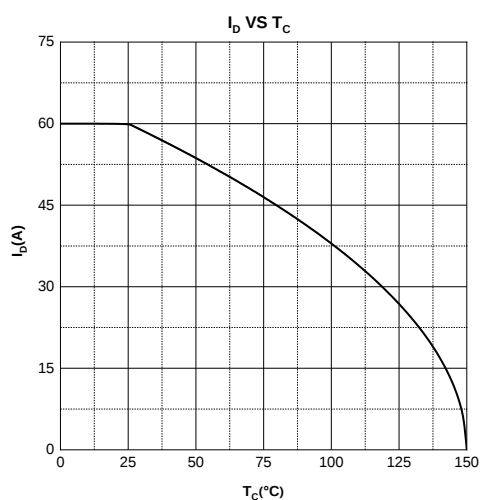
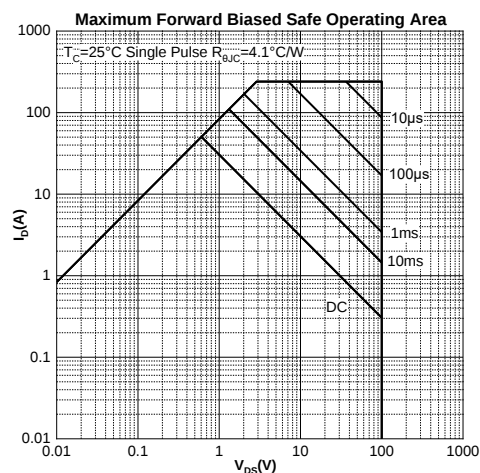
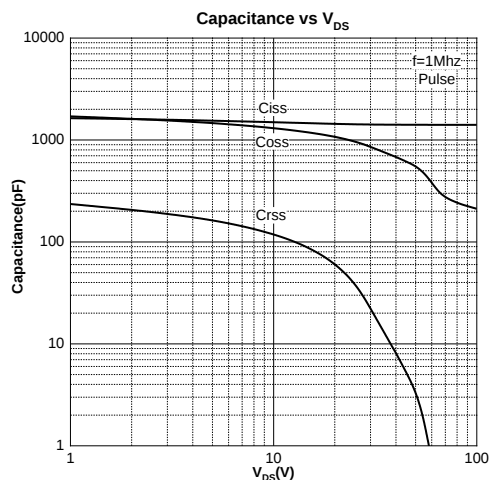
Parameter	Symbol	Test Condition	Min	Type	Max	Unit
Off Characteristics						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = 250\mu A$	100			V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = 100V, V_{GS} = 0V$			1	μA
Gate-Body Leakage Current	I_{GSS}	$V_{GS} = \pm 20V, V_{DS} = 0V$			± 100	nA
On Characteristics ⁴						
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\mu A$	1	1.6	3	V
Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS} = 10V, I_D = 20A$		8.0	9.5	m Ω
		$V_{GS} = 4.5V, I_D = 15A$		9.6	13.0	
Dynamic Characteristics						
Input Capacitance	C_{iss}	$V_{DS} = 50V, V_{GS} = 0V, f = 1MHz$		1414		pF
Output Capacitance	C_{oss}			571		
Reverse Transfer Capacitance	C_{rss}			22		
Gate Resistance	R_g	$V_{DS} = 0V, V_{GS} = 0V, f = 1MHz$		1.8		Ω
Switching Characteristics						
Total Gate Charge	Q_g	$V_{DS} = 50V, V_{GS} = 10V, I_D = 20A$		24		nC
Gate-Source Charge	Q_{gs}			0.2		
Gate-Drain Charge	Q_{gd}			2.9		
Turn-On Delay Time	$t_{d(on)}$	$V_{DD} = 50V, V_{GS} = 10V, R_G = 2.5\Omega, R_L = 6\Omega$		11		ns
Turn-On Rise Time	t_r			52		
Turn-Off Delay Time	$t_{d(off)}$			31		
Turn-Off Fall Time	t_f			104		
Source-Drain Diode Characteristics						
Diode Forward Voltage ⁴	V_{SD}	$V_{GS} = 0V, I_S = 20A$			1.2	V

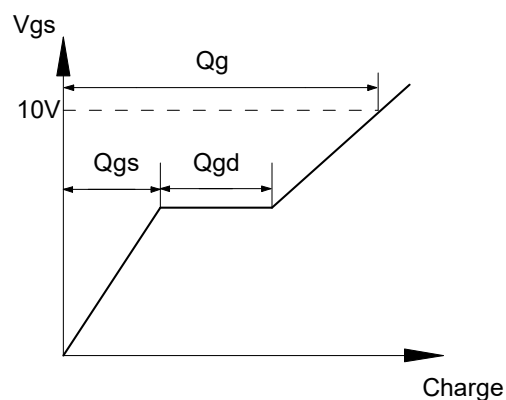
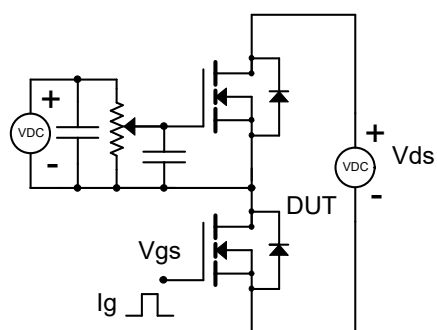
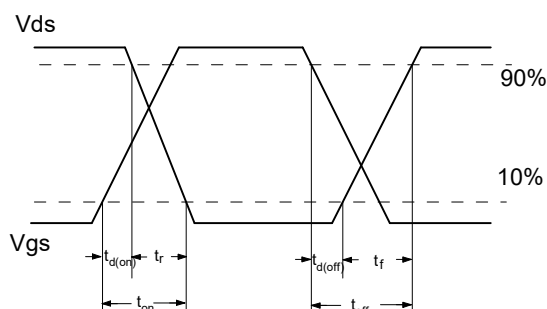
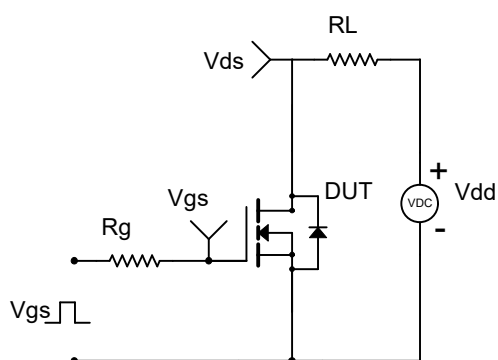
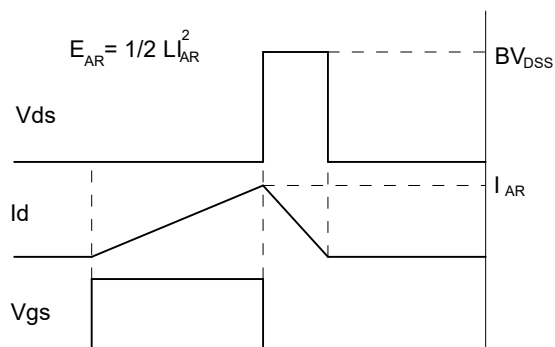
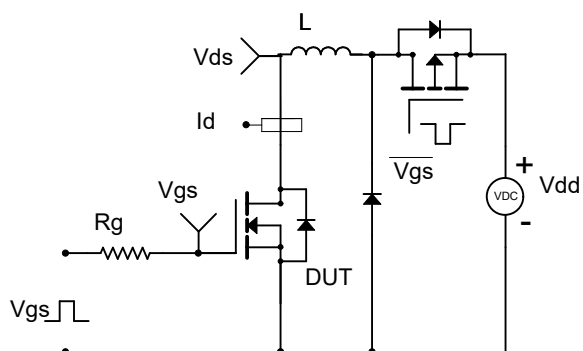
Notes :

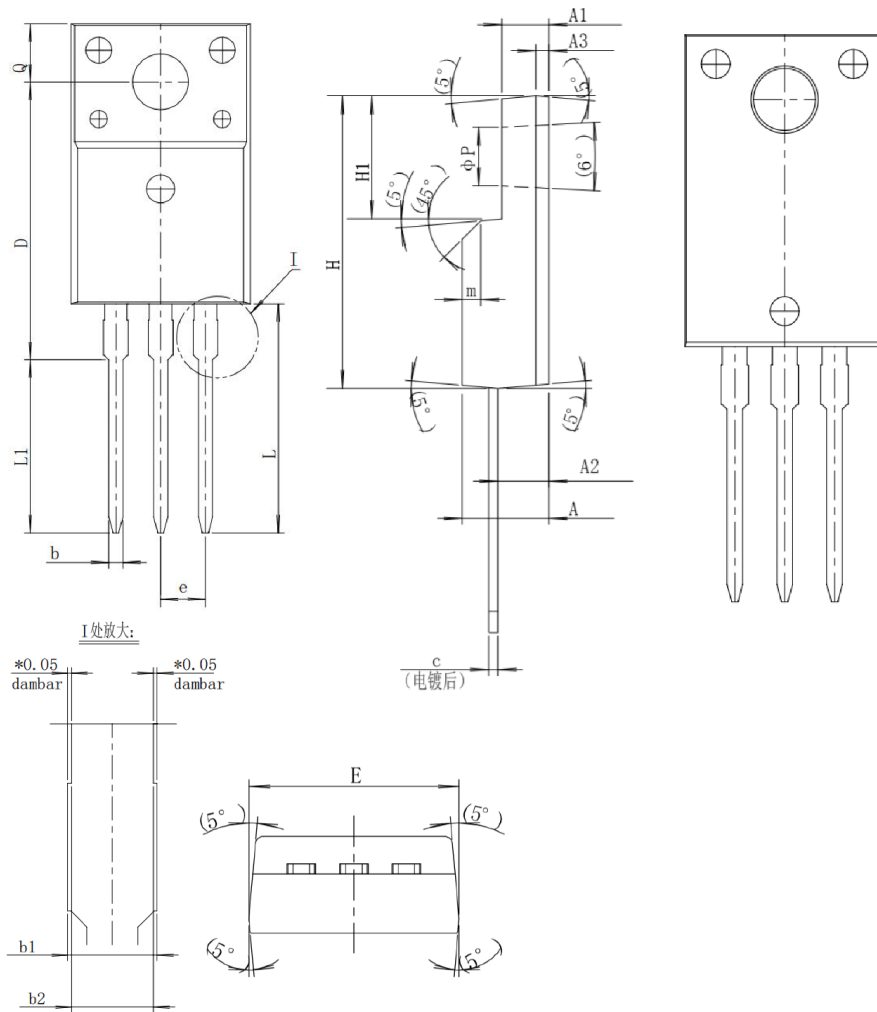
- 1.The maximum current rating is limited by package.And device mounted on a large heatsink
- 2.Pulse Test : Pulse Width $\leq 10\mu s$, duty cycle $\leq 1\%$.
- 3.EAS condition: $V_{DD} = 50V, V_{GS} = 10V, L = 0.5mH, R_G = 25\Omega$ Starting $T_J = 25^\circ\text{C}$.
- 4.Pulse Test : Pulse Width $\leq 300\mu s$, duty cycle $\leq 2\%$.
- 5.The power dissipation P_D is limited by $T_{J(MAX)} = 150^\circ\text{C}$.And device mounted on a large heatsink
- 6.Device mounted on $1in^2$ FR-4 board with 2oz. Copper, in a still air environment with $T_A = 25^\circ\text{C}$.

Typical Characteristics





Gate Charge Test Circuit & Waveform

Resistive Switching Test Circuit & Waveform

Unclamped Inductive Switching (UIS) Test Circuit & Waveforms


TO-220F Package Information


Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	4.600	4.800	0.181	0.189
A1	2.440	2.640	0.096	0.104
A2	2.650	2.850	0.104	0.112
A3	0.700		0.028	
b	0.700	0.900	0.028	0.035
b1	1.280	1.470	0.050	0.058
b2	1.180	1.390	0.046	0.055
c	0.450	0.600	0.018	0.024
D	15.640	15.850	0.616	0.624
E	10.060	12.260	0.396	0.483
e	2.540		0.100	
H	15.770	15.970	0.621	0.629
H1	6.580	6.780	0.259	0.267
L	12.680	13.280	0.499	0.523
L1	9.600	10.000	0.378	0.394
Q	3.200	3.400	0.126	0.134
ΦP	3.080	3.280	0.121	0.129
m	0.500	1.500	0.020	0.059

Attention:

- GreenPower Electronics reserves the right to improve product design function and reliability without notice.
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