



#### Product Summary

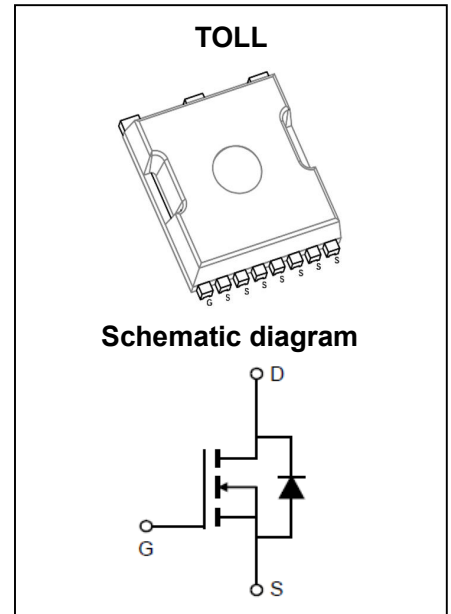
$V_{(BR)DSS}$	$R_{DS(on)TYP}$	$I_D$
100V	1.1m $\Omega$ @10V	325A

#### Feature

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

#### Application

- Power Switching Application
- Motor Driving



#### Package Marking and Ordering Information

Part Number	Package	Marking	Packing	Reel Size	Tape Width	Qty
GPT011N10NTP	TOLL	T011N10N	Reel & Tape	330mm	24mm	2000pcs

#### 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	$V_{GS}$	$\pm 20$	V
Continuous Drain Current <sup>1</sup>	$T_C = 25^\circ\text{C}$	$I_D$	325 A
	$T_C = 100^\circ\text{C}$	$I_D$	205 A
Pulsed Drain Current <sup>2</sup>	$I_{DM}$	1300	A
Single Pulsed Avalanche Current <sup>3</sup>	$I_{AS}$	99	A
Single Pulsed Avalanche Energy <sup>3</sup>	$E_{AS}$	2450	mJ
Power Dissipation <sup>5</sup>	$T_C = 25^\circ\text{C}$	$P_D$	500 W
Thermal Resistance from Junction to Ambient <sup>6</sup>	$R_{\theta JA}$	35	$^\circ\text{C}/\text{W}$
Thermal Resistance from Junction to Case	$R_{\theta JC}$	0.2	$^\circ\text{C}/\text{W}$
Junction Temperature	$T_J$	150	$^\circ\text{C}$
Storage Temperature	$T_{STG}$	-55~ +150	$^\circ\text{C}$

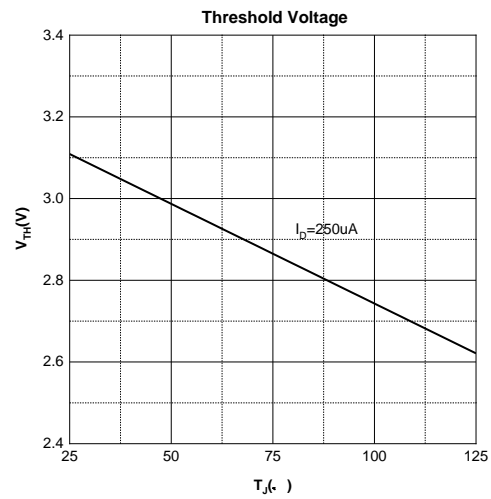
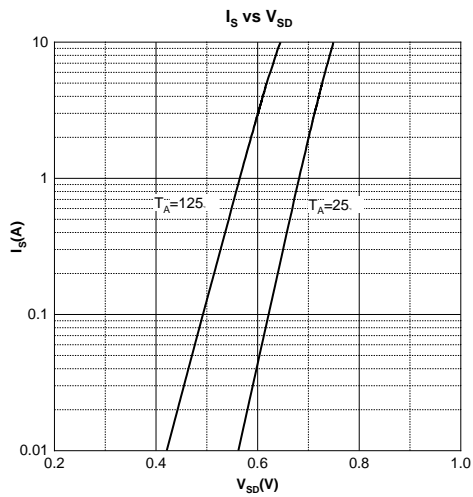
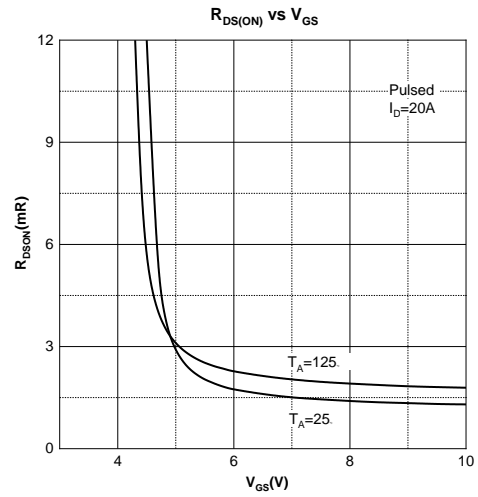
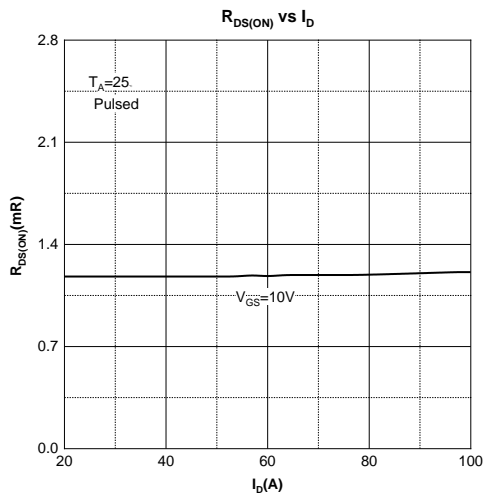
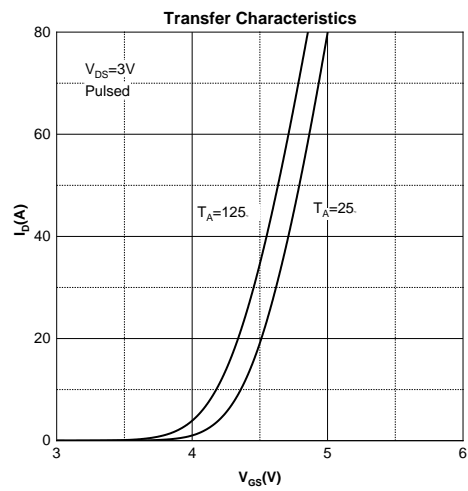
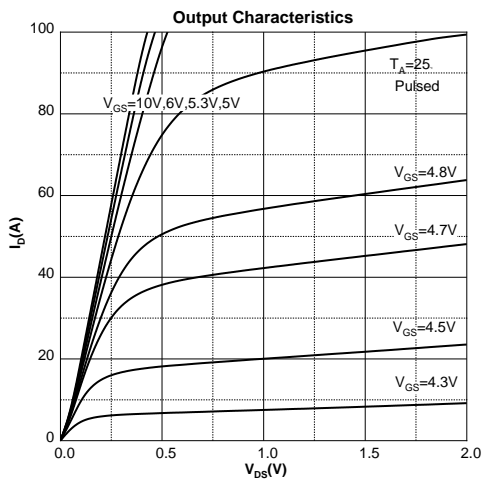
## MOSFET ELECTRICAL CHARACTERISTICS (T<sub>A</sub> = 25°C unless otherwise noted)

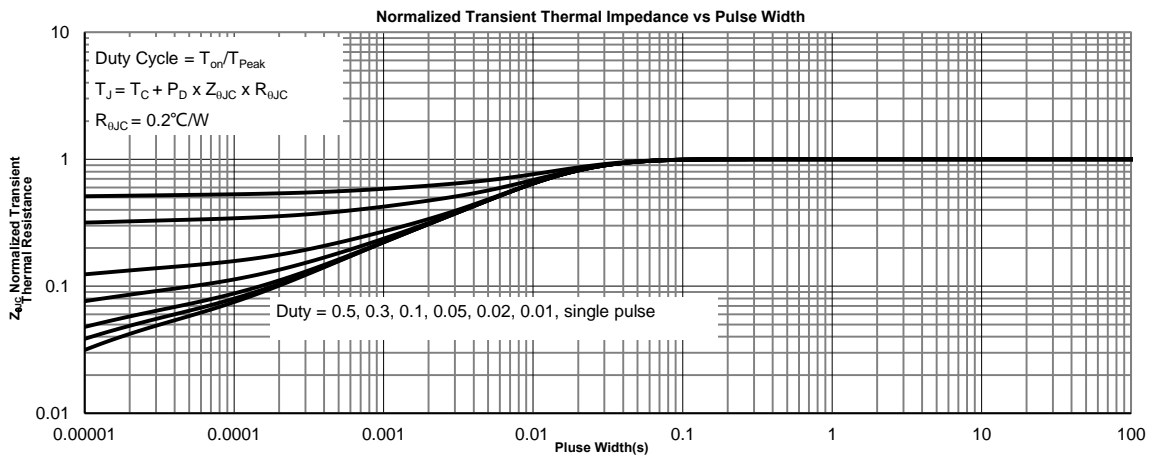
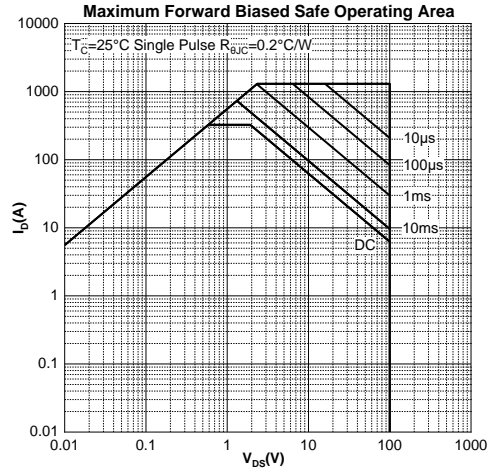
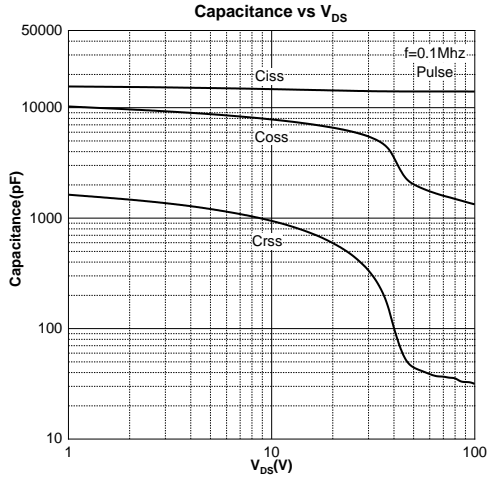
Parameter	Symbol	Test Condition	Min	Type	Max	Unit
<b>Off Characteristics</b>						
Drain - Source Breakdown Voltage	V <sub>(BR)DSS</sub>	V <sub>GS</sub> = 0V, I <sub>D</sub> = 250μA	100			V
Zero Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> = 100V, V <sub>GS</sub> = 0V			1	μA
Gate - Body Leakage Current	I <sub>GSS</sub>	V <sub>GS</sub> = ±20V, V <sub>DS</sub> = 0V			±100	nA
<b>On Characteristics<sup>4</sup></b>						
Gate Threshold Voltage	V <sub>GS(th)</sub>	V <sub>DS</sub> = V <sub>GS</sub> , I <sub>D</sub> = 250μA	2	3.1	4	V
Drain-source On-resistance	R <sub>DS(on)</sub>	V <sub>GS</sub> = 10V, I <sub>D</sub> = 20A		1.1	1.4	mΩ
<b>Dynamic Characteristics</b>						
Input Capacitance	C <sub>iss</sub>	V <sub>DS</sub> = 50V, V <sub>GS</sub> = 0V, f = 0.1MHz		13860		pF
Output Capacitance	C <sub>oss</sub>			2043		
Reverse Transfer Capacitance	C <sub>rss</sub>			44		
Gate Resistance	R <sub>g</sub>	V <sub>DS</sub> = 0V, V <sub>GS</sub> = 0V, f = 0.1MHz		2.8		Ω
<b>Switching Characteristics</b>						
Total Gate Charge	Q <sub>g</sub>	V <sub>DS</sub> = 50V, V <sub>GS</sub> = 10V, I <sub>D</sub> = 20A		200		nC
Gate-source Charge	Q <sub>gs</sub>			58		
Gate-drain Charge	Q <sub>gd</sub>			42		
Turn-on Delay Time	t <sub>d(on)</sub>	V <sub>DD</sub> = 20V, V <sub>GS</sub> = 10V, R <sub>L</sub> = 1Ω, R <sub>G</sub> = 3Ω		39		ns
Turn-on Rise Time	t <sub>r</sub>			65		
Turn-off Delay Time	t <sub>d(off)</sub>			129		
Turn-off Fall Time	t <sub>f</sub>			90		
<b>Source - Drain Diode Characteristics</b>						
Diode Forward Voltage <sup>4</sup>	V <sub>SD</sub>	V <sub>GS</sub> = 0V, I <sub>S</sub> = 20A			1.2	V

### Notes :

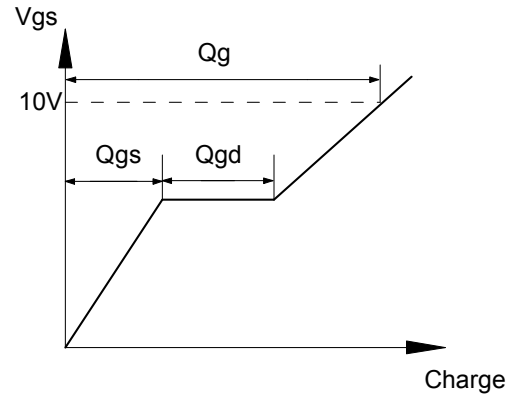
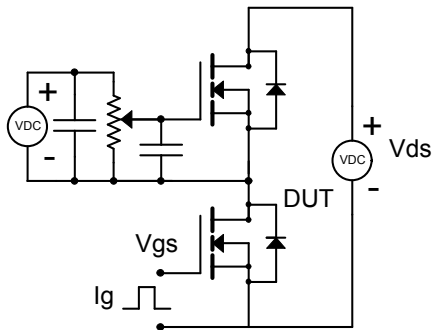
- 1.The maximum current rating is limited by package.And device mounted on a large heatsink
- 2.Pulse Test : Pulse Width ≤ 10μs, duty cycle ≤ 1%.
- 3.E<sub>AS</sub> condition: V<sub>DD</sub> = 50V, V<sub>GS</sub> = 10V, L = 0.5mH, R<sub>G</sub> = 25Ω Starting T<sub>J</sub> = 25°C.
- 4.Pulse Test : Pulse Width ≤ 300μs, duty cycle ≤ 2%.
- 5.The power dissipation P<sub>D</sub> is limited by T<sub>J(MAX)</sub> = 150°C.And device mounted on a large heatsink
- 6.Device mounted on 1in<sup>2</sup> FR-4 board with 2oz. Copper, in a still air environment with T<sub>A</sub> =25°C.

## Typical Characteristics

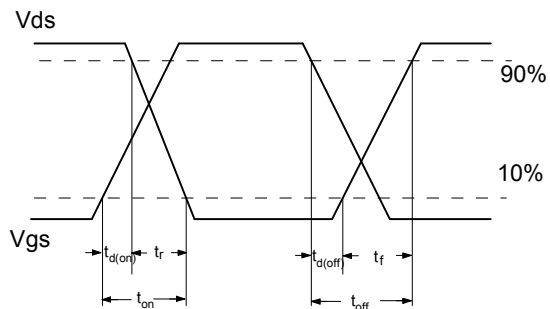
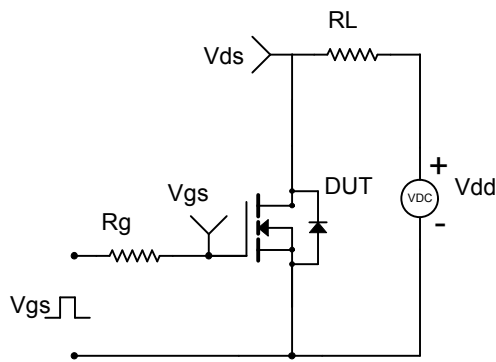




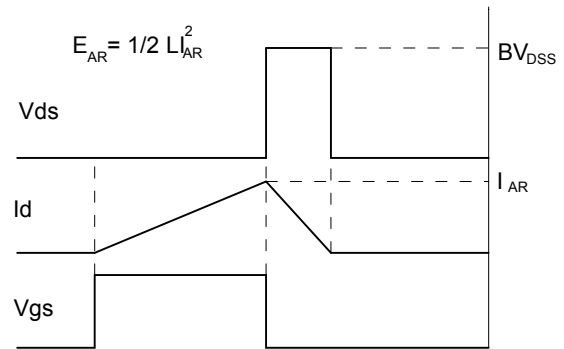
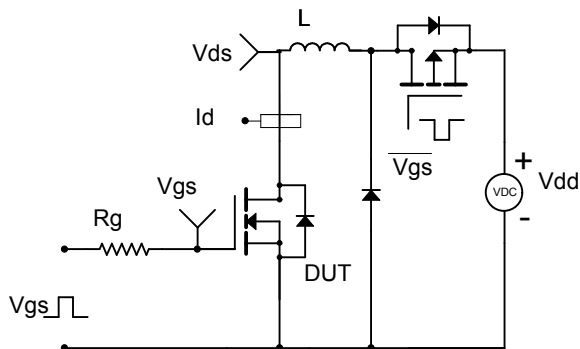
Gate Charge Test Circuit & Waveform



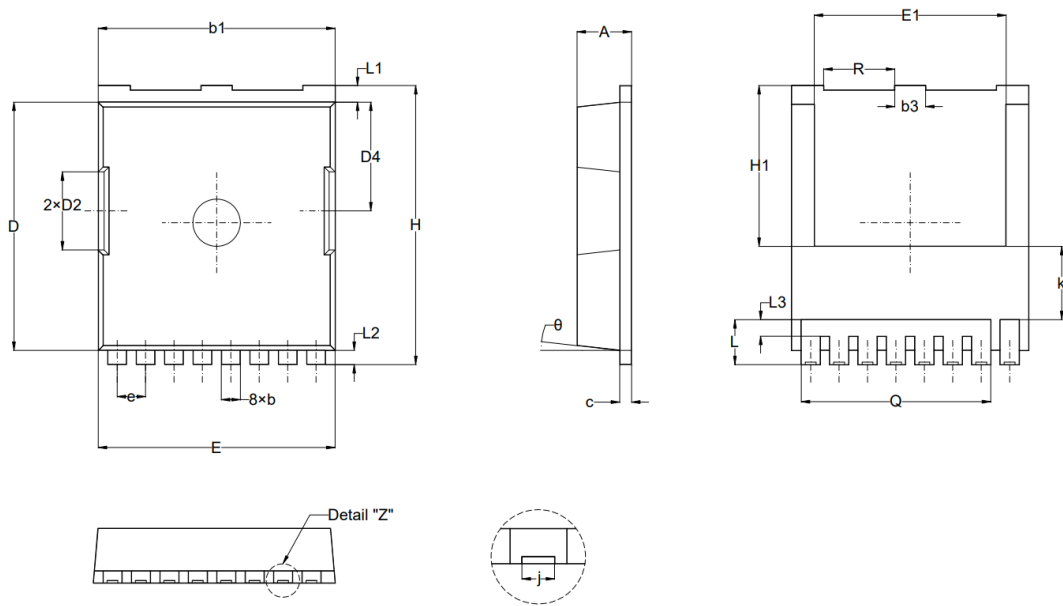
Resistive Switching Test Circuit & Waveform



Unclamped Inductive Switching (UIS) Test Circuit & Waveforms



## TOLL Package Information



SYMBOL	MILLIMETER		Dimensions In Inches	
	MIN.	MAX.	Min.	Max.
A	2.200	2.400	0.087	0.094
b	0.650	0.900	0.026	0.035
b1	9.700	9.900	0.382	0.390
b3	1.150	1.350	0.045	0.053
c	0.400	0.600	0.016	0.024
D	10.280	10.480	0.405	0.413
D2	3.200	3.400	0.126	0.134
D4	4.450	4.650	0.175	0.183
E	9.800	10.000	0.386	0.394
E1	7.900	8.300	0.311	0.327
e	1.200BSC		0.047BSC	
H	11.480	11.880	0.452	0.468
H1	6.950REF		0.274REF	
j	0.350REF		0.014REF	
K	3.00REF		0.118REF	
L	1.600	2.000	0.063	0.079
L1	0.550	0.850	0.022	0.033
L2	0.500	0.700	0.020	0.028
L3	0.500	0.800	0.020	0.031
N	8REF		0.315REF	
Q	8REF		0.315REF	
R	2.800	3.200	0.110	0.126
θ	10°REF			