



Product Summary

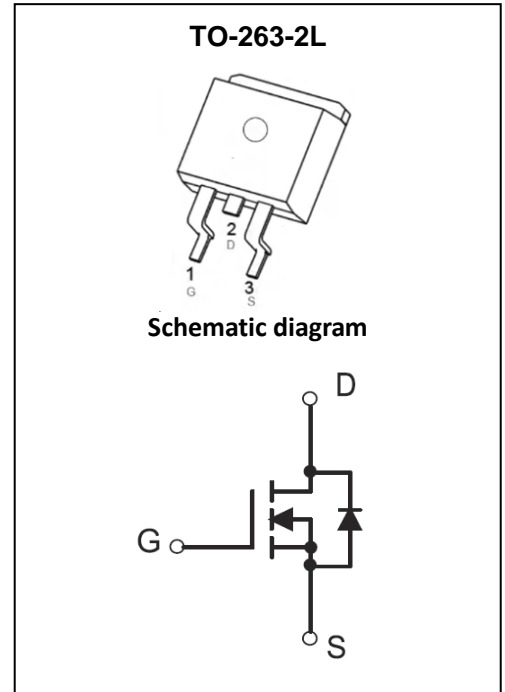
$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
150V	10.5mΩ@10V	83A

Feature

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

Application

- Power Switching Application
- Hard Switched and High Frequency Circuits
- DC/DC Converter



Package Marking and Ordering Information

Part Number	Package	Marking	Packing	Reel Size	Tape Width	Qty
GPT105N15NTH	TO-263-2L	T105N15N	Reel & Tape	NA	NA	800pcs

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

Parameter	Symbol	Value	Unit	
Drain - Source Voltage	V_{DS}	150	V	
Gate - Source Voltage	V_{GS}	±20	V	
Continuous Drain Current ¹	$T_C = 25^\circ\text{C}$	I_D	83	A
	$T_C = 100^\circ\text{C}$	I_D	52	A
Pulsed Drain Current ²	I_{DM}	332	A	
Single Pulsed Avalanche Current ³	I_{AS}	35	A	
Single Pulsed Avalanche Energy ³	E_{AS}	306	mJ	
Power Dissipation ⁵	$T_C = 25^\circ\text{C}$	P_D	174	W
Thermal Resistance from Junction to Ambient ⁶	$R_{\theta JA}$	58	$^\circ\text{C/W}$	
Thermal Resistance from Junction to Case	$R_{\theta JC}$	0.72	$^\circ\text{C/W}$	
Junction Temperature	T_J	150	$^\circ\text{C}$	
Storage Temperature	T_{STG}	-55~ +150	$^\circ\text{C}$	

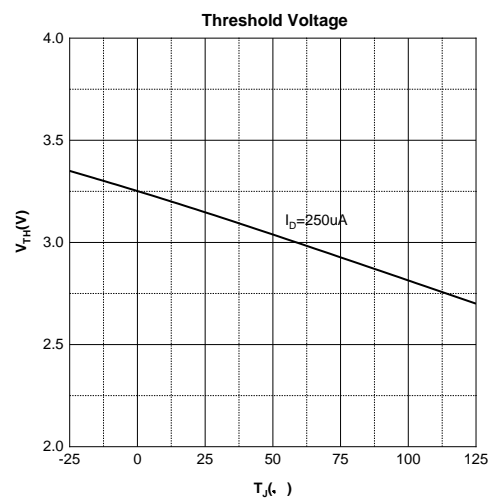
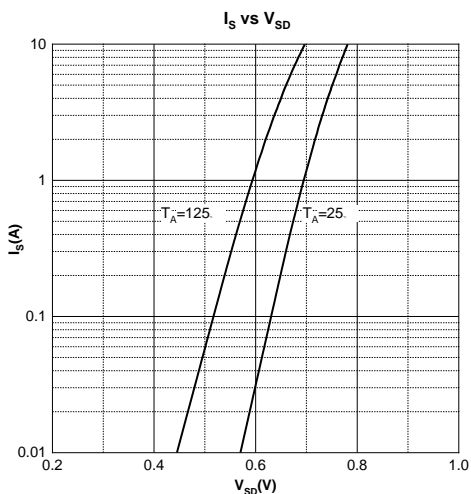
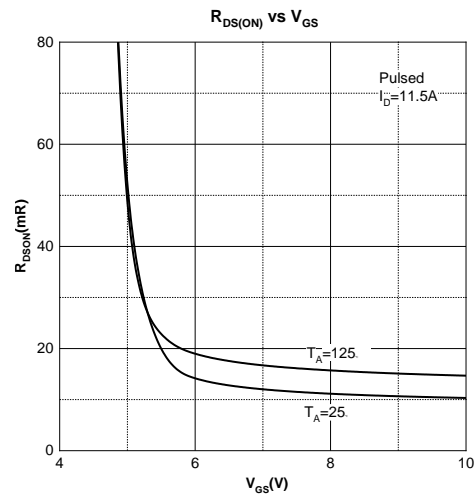
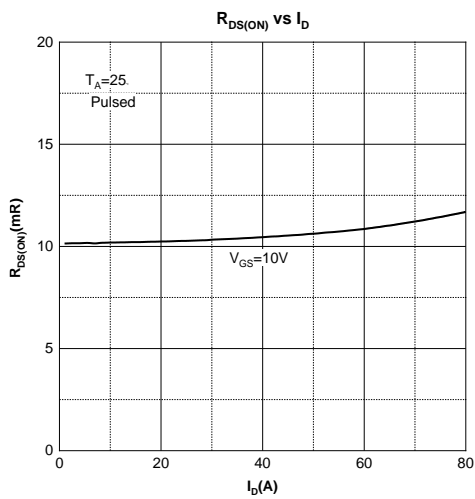
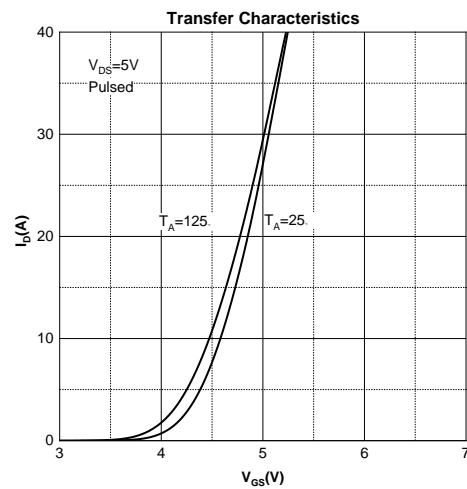
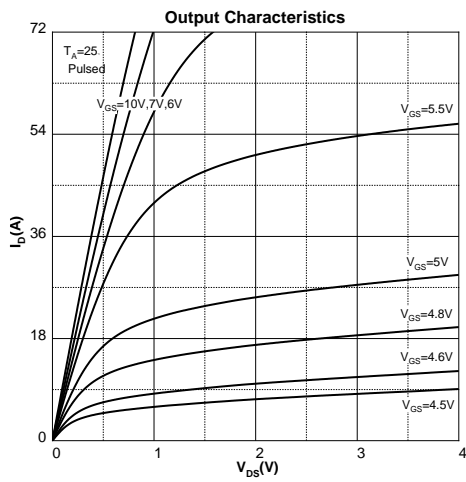
MOSFET ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ unless otherwise noted)

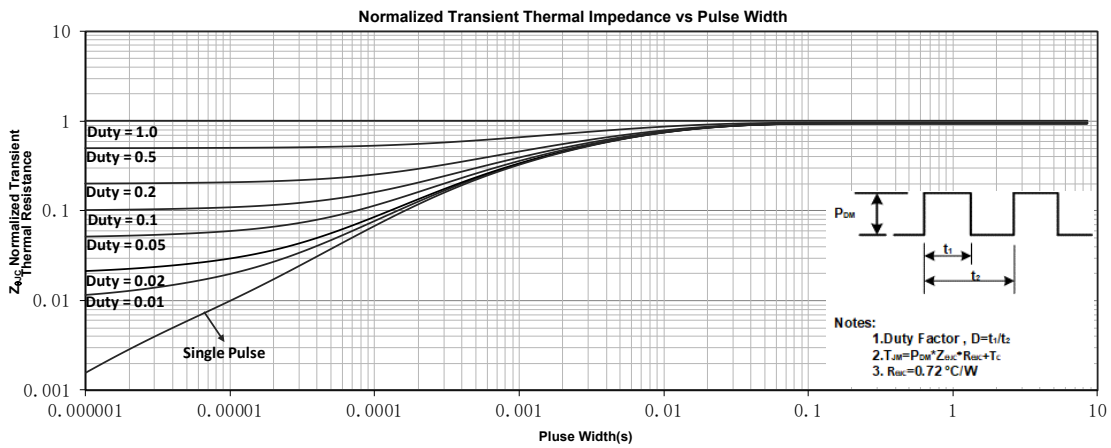
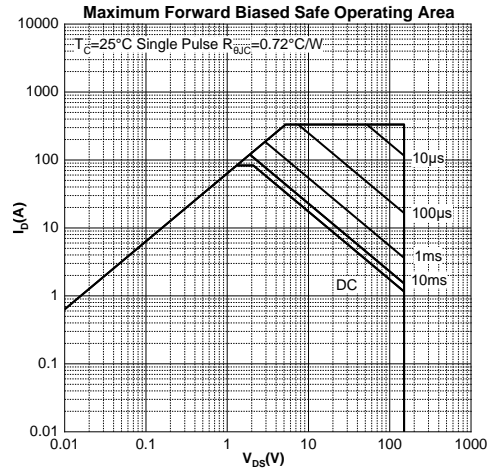
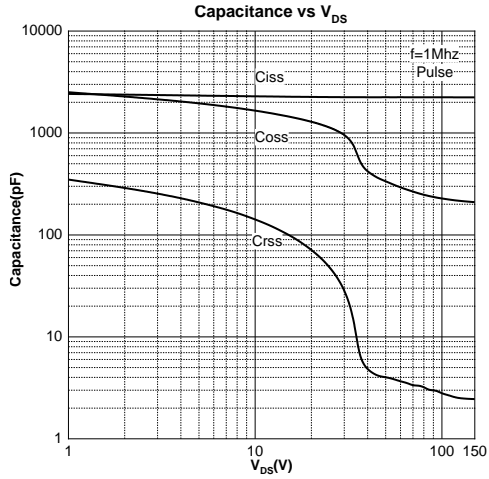
Parameter	Symbol	Test Condition	Min	Type	Max	Unit
Off Characteristics						
Drain - Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = 250\mu A$	150			V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = 150V, V_{GS} = 0V$			1	μA
Gate - Body Leakage Current	I_{GSS}	$V_{GS} = \pm 20V, V_{DS} = 0V$			± 150	nA
On Characteristics⁴						
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\mu A$	2	3.1	4	V
Drain-source On-resistance	$R_{DS(on)}$	$V_{GS} = 10V, I_D = 20A$		10.5	14.0	m Ω
Dynamic Characteristics						
Input Capacitance	C_{iss}	$V_{DS} = 75V, V_{GS} = 0V, f = 1MHz$		2240		pF
Output Capacitance	C_{oss}			256		
Reverse Transfer Capacitance	C_{rss}			3.2		
Gate Resistance	R_g	$V_{DS} = 0V, V_{GS} = 0V, f = 1MHz$		2.8		Ω
Switching Characteristics						
Total Gate Charge	Q_g	$V_{DS} = 70V, V_{GS} = 10V, I_D = 20A$		31		nC
Gate-source Charge	Q_{gs}			7.3		
Gate-drain Charge	Q_{gd}			7.2		
Turn-on Delay Time	$t_{d(on)}$	$V_{DD} = 75V, V_{GS} = 10V, I_D = 35A,$ $R_G = 3\Omega$		13		ns
Turn-on Rise Time	t_r			4		
Turn-off Delay Time	$t_{d(off)}$			16		
Turn-off Fall Time	t_f			3		
Source - Drain Diode Characteristics						
Diode Forward Voltage ⁴	V_{SD}	$V_{GS} = 0V, I_S = 20A$			1.2	V

Notes :

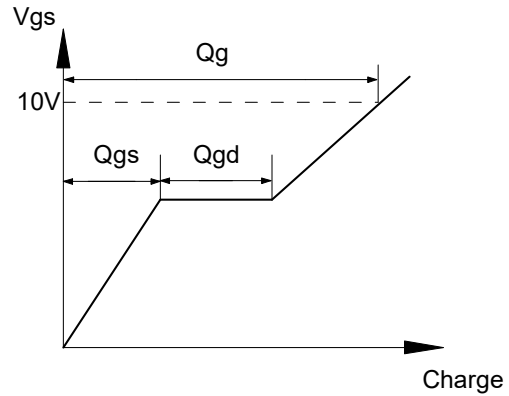
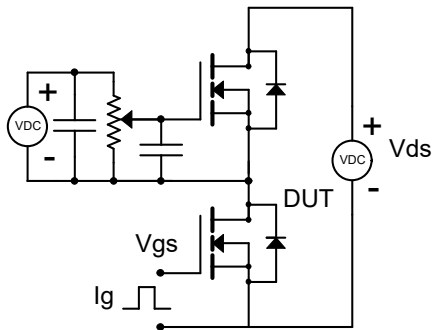
- 1.The maximum current rating is limited by package.And device mounted on a large heatsink
- 2.Pulse Test : Pulse Width $\leq 10\mu s$, duty cycle $\leq 1\%$.
- 3.EAS condition: $V_{DD} = 50V, V_{GS} = 10V, L = 0.5mH, R_G = 25\Omega$ Starting $T_J = 25^\circ\text{C}$.
- 4.Pulse Test : Pulse Width $\leq 300\mu s$, 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

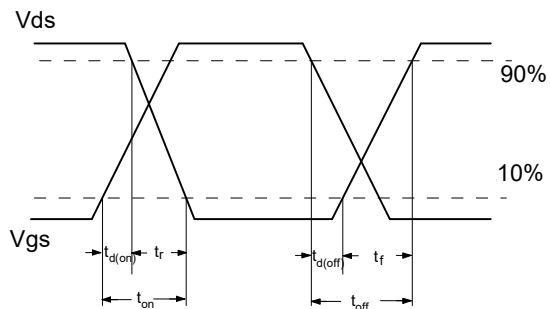
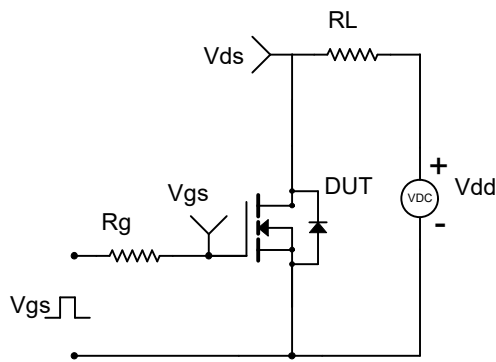




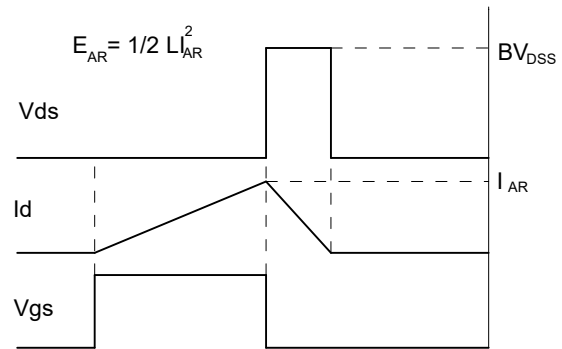
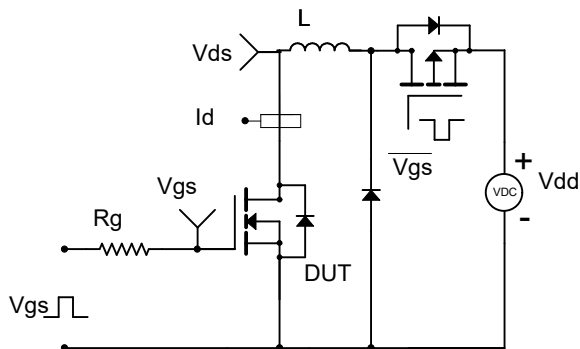
Gate Charge Test Circuit & Waveform



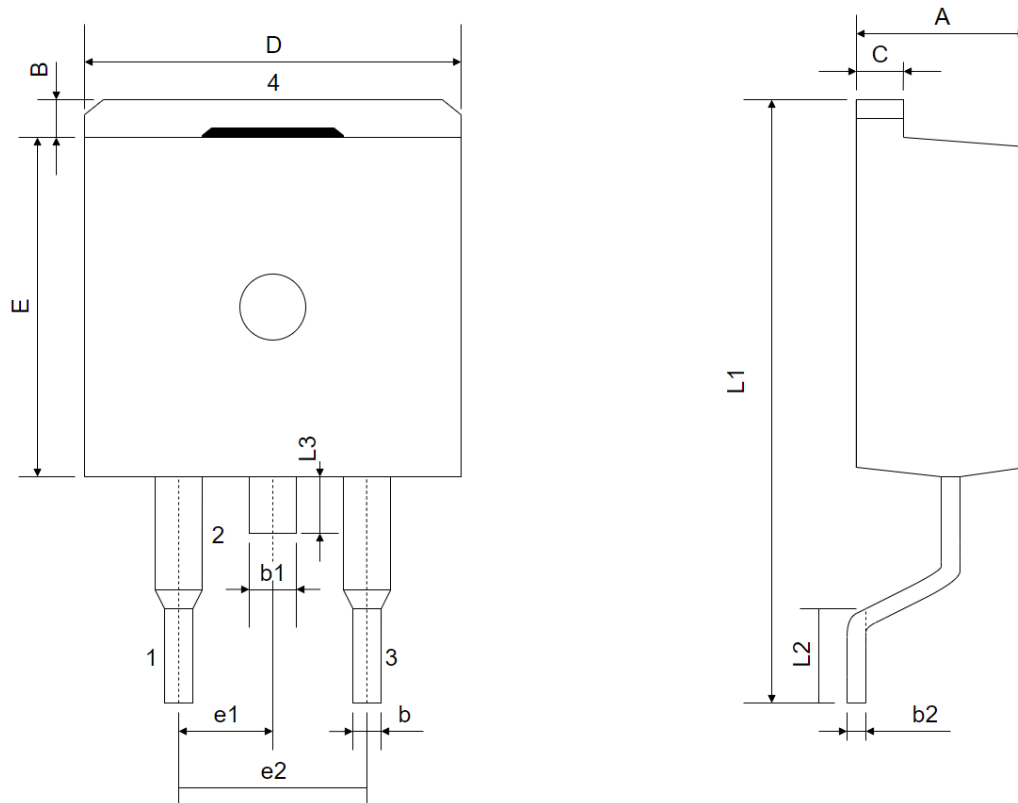
Resistive Switching Test Circuit & Waveform



Unclamped Inductive Switching (UIS) Test Circuit & Waveforms



TO-263-2L Package Information



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	4.300	4.700	0.169	0.185
B	1.000	1.400	0.039	0.055
b	0.700	0.900	0.028	0.035
b1	1.150	1.350	0.045	0.053
b2	0.400	0.600	0.016	0.024
C	1.200	1.400	0.047	0.055
D	9.800	10.200	0.386	0.402
E	9.000	9.400	0.354	0.370
e1	2.340	2.740	0.092	0.108
e2	4.880	5.280	0.192	0.208
L1	15.000	16.000	0.591	0.630
L2	2.240	2.840	0.088	0.112
L3	1.200	1.600	0.047	0.063

Attention:

- GreenPower Electronics reserves the right to improve product design function and reliability without notice.
- Any and all semiconductor products have certain probability to fail or malfunction, which may result in personal injury, death or property damage. Customer are solely responsible for providing adequate safe measures when design their systems.
- GreenPower Electronics products belong to consumer electronics or other civilian electronic products.