

Product Summary

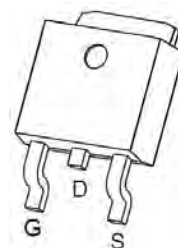
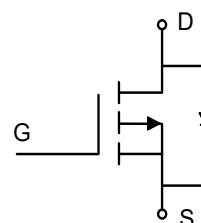
$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
-150V	104mΩ@-10V	-25A
	108mΩ@-4.5V	

Feature

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

Application

- Power Switching Application
- Motor Driving

TO-252-2L

Schematic diagram

Package Marking and Ordering Information

Part Number	Package	Marking	Packing	Reel Size	Tape Width	Qty
GPT950P15LTF	TO-252-2L	T950P15L	Reel & Tape	330mm	16mm	2500pcs

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	-25	A
	$T_C = 100^\circ\text{C}$	I_D	-17	A
Pulsed Drain Current ²		I_{DM}	-100	A
Single Pulsed Avalanche Current ³		I_{AS}	-35	A
Single Pulsed Avalanche Energy ³		E_{AS}	306	mJ
Power Dissipation ⁵		P_D	147	W
$T_C = 25^\circ\text{C}$				
Thermal Resistance from Junction to Ambient ⁶		$R_{\theta JA}$	42	$^\circ\text{C/W}$
Thermal Resistance from Junction to Case		$R_{\theta JC}$	0.85	$^\circ\text{C/W}$
Junction Temperature		T_J	150	$^\circ\text{C}$
Storage Temperature		T_{STG}	-55~ +150	$^\circ\text{C}$

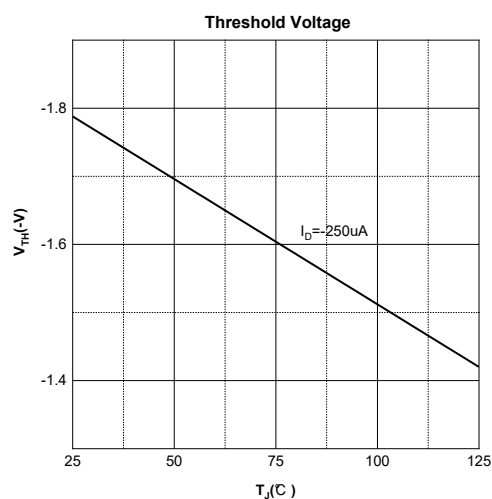
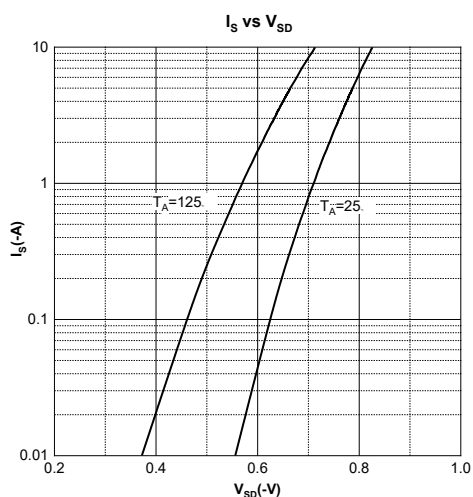
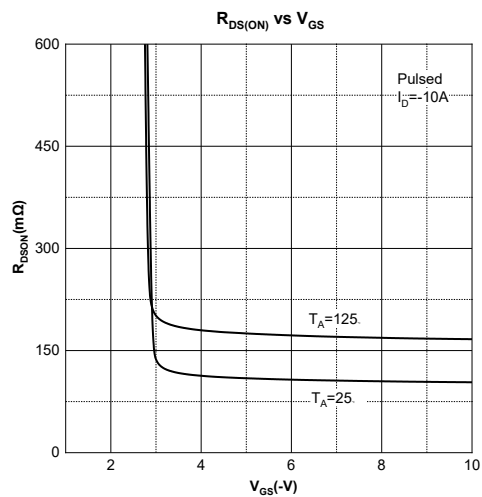
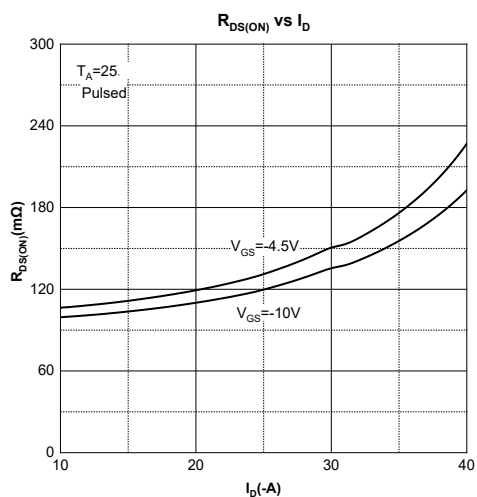
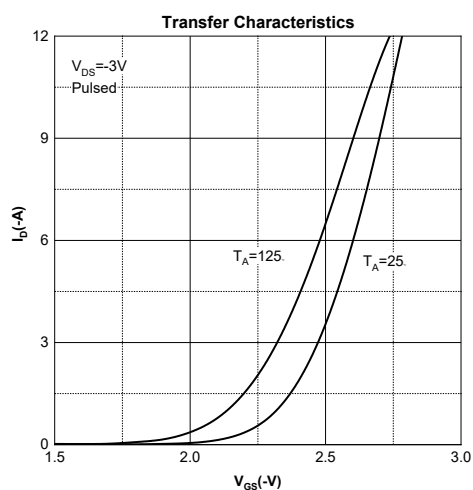
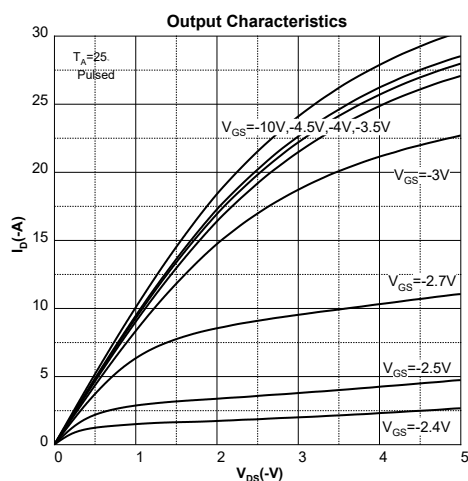
MOSFET ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise noted)z

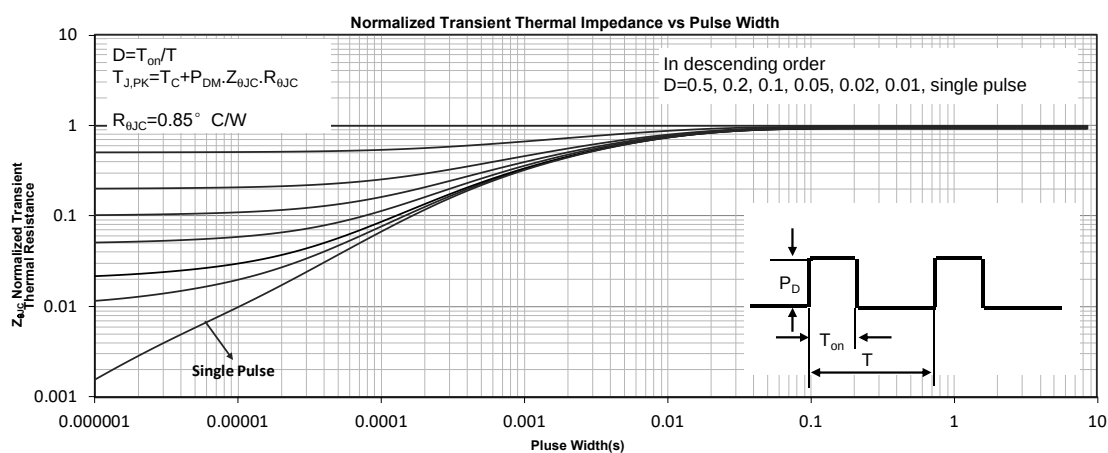
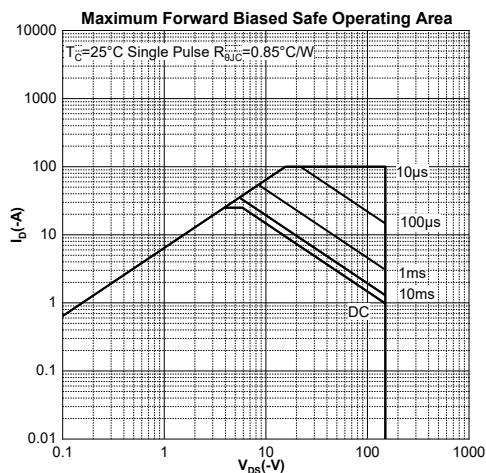
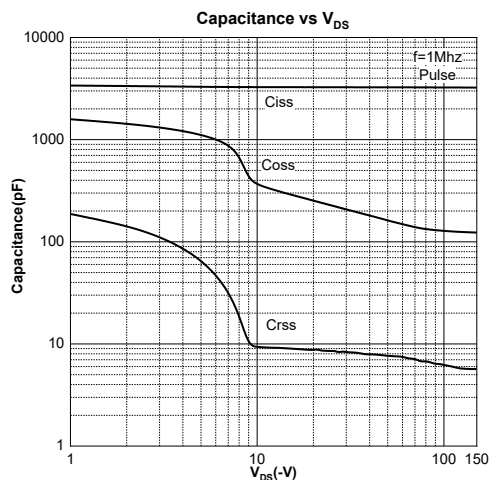
Parameter	Symbol	Test Condition	Min	Type	Max	Unit
Off Characteristics						
Drain-Source Breakdown Voltage	V _{(BR)DSS}	V _{GS} = 0V, I _D = 250μA	-150			V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = -150V, V _{GS} = 0V			-1	μA
Gate-Body Leakage Current	I _{GSS}	V _{GS} = ±20V, V _{DS} = 0V			±100	nA
On Characteristics ⁴						
Gate Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = -250μA	-1.0	-1.8	-3.0	V
Drain-Source On-Resistance	R _{DS(on)}	V _{GS} = -10V, I _D = -15A		104	135	mΩ
		V _{GS} = -4.5V, I _D = -10A		108	140	
Dynamic Characteristics						
Input Capacitance	C _{iss}	V _{DS} = -75V, V _{GS} = 0V, f = 1MHz		3235		pF
Output Capacitance	C _{oss}			136		
Reverse Transfer Capacitance	C _{rss}			6.6		
Gate Resistance	R _g	V _{DS} = 0V, V _{GS} = 0V, f = 1MHz		7.2		Ω
Switching Characteristics						
Total Gate Charge	Q _g	V _{DS} = -75V, V _{GS} = -10V, I _D = -10A		46		nC
Gate-Source Charge	Q _{gs}			7.0		
Gate-Drain Charge	Q _{gd}			7.1		
Turn-On Delay Time	t _{d(on)}	V _{DD} = -75V, V _{GS} = -10V, I _D = -10A, R _G = 3Ω		11		ns
Turn-On Rise Time	t _r			45		
Turn-Off Delay Time	t _{d(off)}			72		
Turn-Off Fall Time	t _f			66		
Source-Drain Diode Characteristics						
Diode Forward Voltage ⁴	V _{SD}	V _{GS} = 0V, I _S = -10A			1.2	V

Notes :

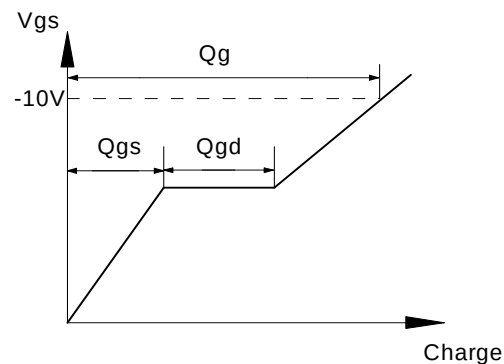
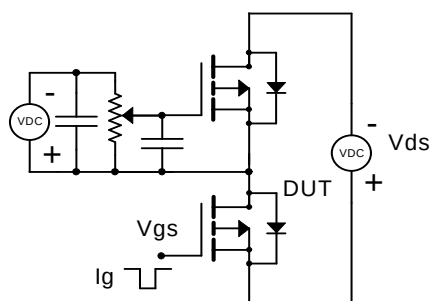
- 1.The maximum current rating is limited by package. And device mounted on a large heatsink.
- 2.Pulse Test : Pulse Width ≤ 10μs, duty cycle ≤ 1%.
- 3.E_{AS} condition: V_{DD} = -50V, V_{GS} = -10V, L = 0.5mH, R_G = 25Ω Starting T_J = 25°C.
- 4.Pulse Test : Pulse Width ≤ 300μs, duty cycle ≤ 2%.
- 5.The power dissipation P_D is limited by T_{J(MAX)} = 150°C.And device mounted on a large heatsink.
- 6.Device mounted on 1in² FR-4 board with 2oz. Copper, in a still air environment with T_A = 25°C.

Typical Characteristics

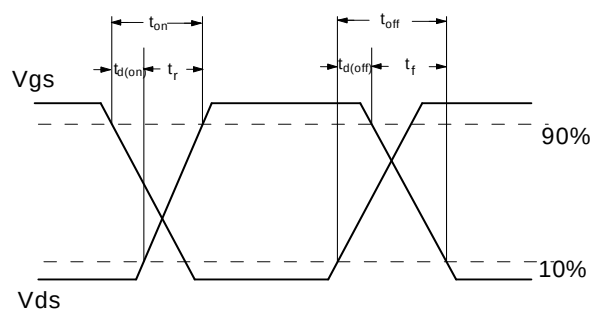
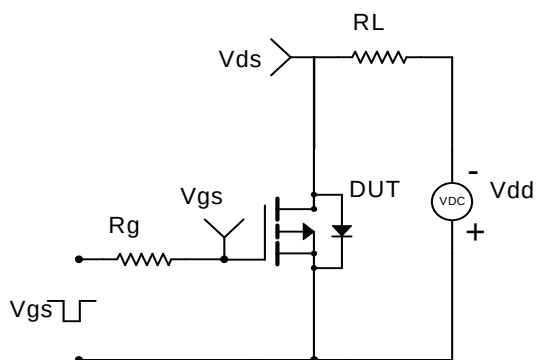




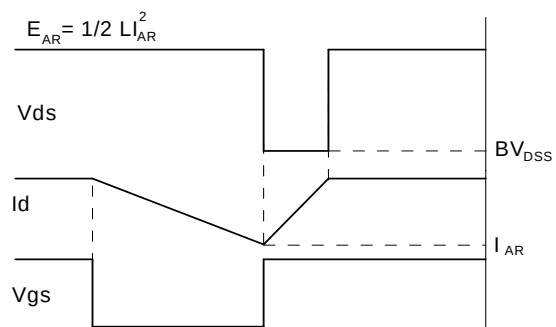
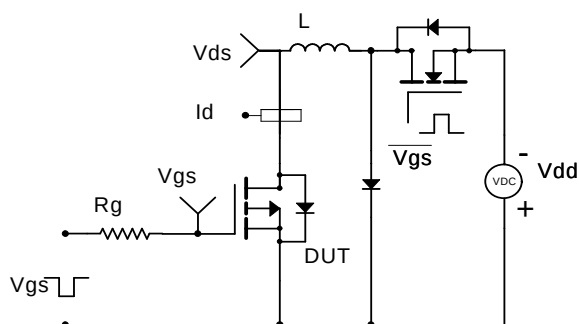
Gate Charge Test Circuit & Waveform

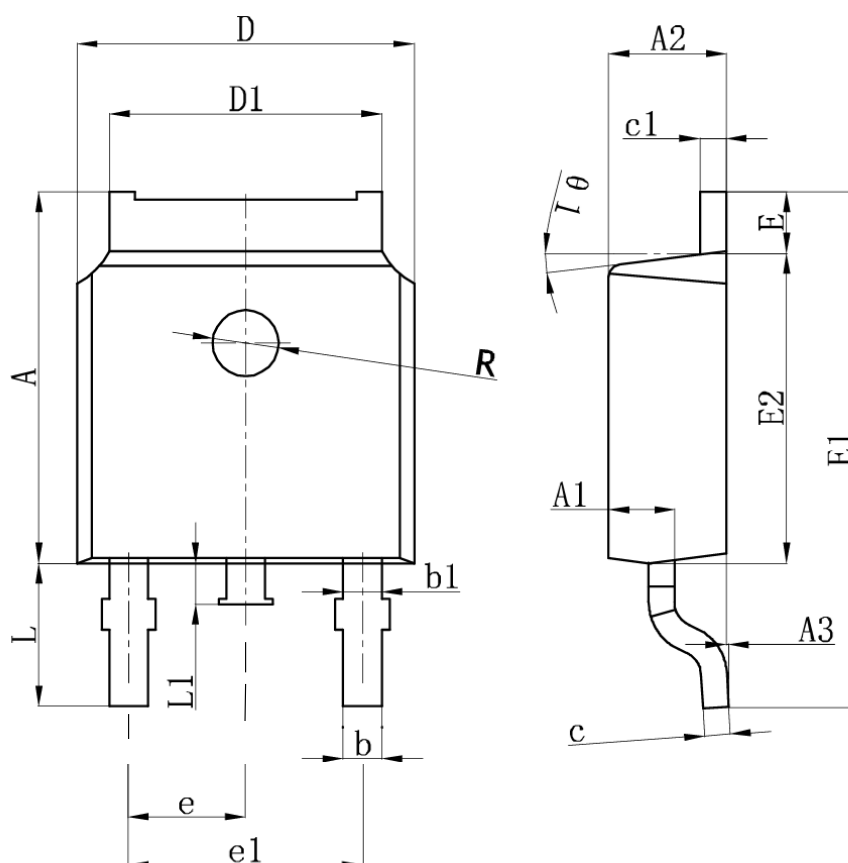


Resistive Switching Test Circuit & Waveform



Unclamped Inductive Switching (UIS) Test Circuit & Waveforms



TO-252-2L Package Information


Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	6.850	7.250	0.269	0.285
A1	0.960	1.060	0.038	0.042
A2	2.200	2.400	0.087	0.094
A3	0.000	0.15	0.000	0.006
b	0.760REF		0.030REF	
b1	1.000REF		0.039REF	
c	0.508REF		0.020REF	
c1	0.508REF		0.020REF	
D	6.250	6.850	0.246	0.270
D1	5.050	5.650	0.199	0.222
E	0.850	1.200	0.033	0.047
E1	9.700	10.400	0.382	0.409
E2	5.800	6.400	0.228	0.252
e	2.286BSC		0.090BSC	
e1	4.572REF		0.180REF	
L	2.650	2.950	0.104	0.116
L1	0.600	1.000	0.024	0.039
θ	7°REF		7°REF	
R	1.300REF		0.051REF	

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.
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