

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
-100V	42mΩ@-10V	-35A
	45mΩ@-4.5V	

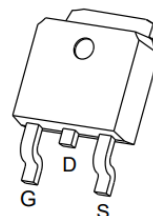
Feature

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

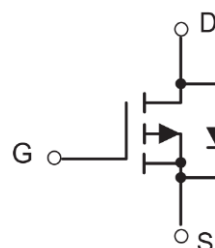
Application

- Power Management
- Load Switching
- PWM Application

TO-252-2L



Schematic diagram



Package Marking and Ordering Information

Part Number	Package	Marking	Packing	Reel Size	Tape Width	Qty
GP35P10D	TO-252-2L	U35P10	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}	-100	V
Gate-Source Voltage		V _{GS}	±20	V
Continuous Drain Current ¹	T _C = 25°C	I _D	-35	A
	T _C = 100°C		-21	
Pulsed Drain Current ²		I _{DM}	-140	A
Single Pulsed Avalanche Current ³		I _{AS}	-30	A
Single Pulsed Avalanche Energy ³		E _{AS}	220	mJ
Power Dissipation ⁵	T _C = 25°C	P _D	113	W
Thermal Resistance from Junction to Case ⁶		R _{θJC}	1.1	°C/W
Operating Junction and Storage Temperature Range		T _J , T _{STG}	-55~ +150	°C

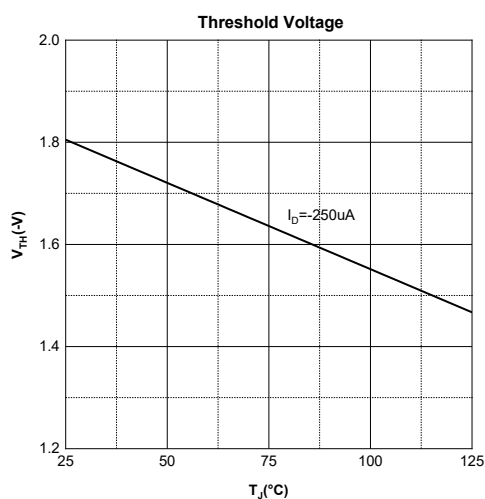
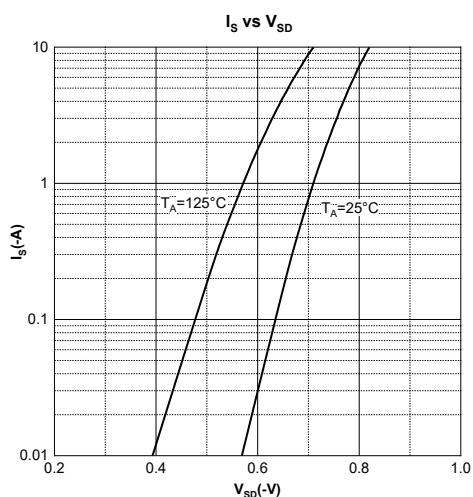
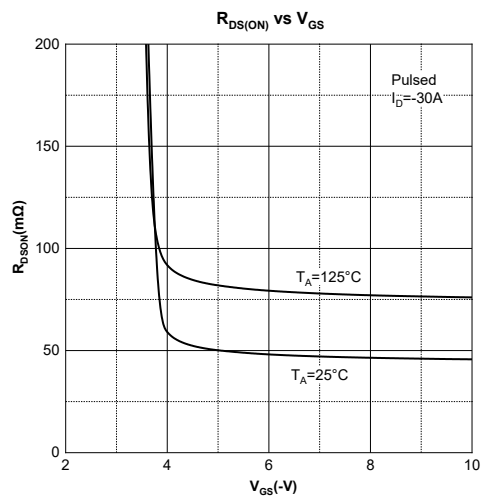
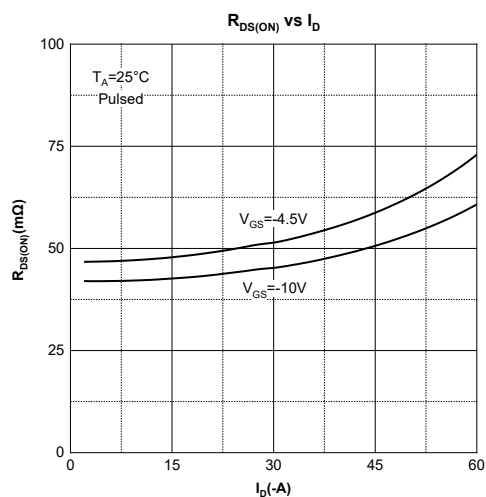
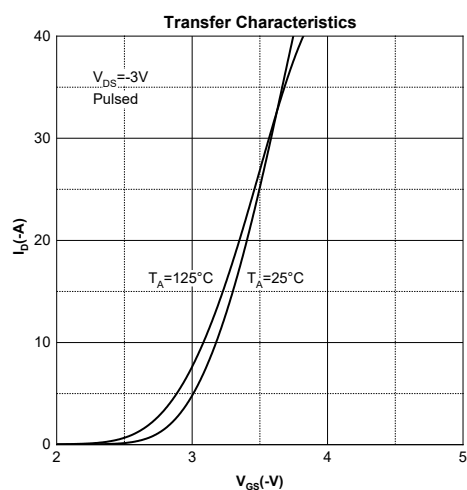
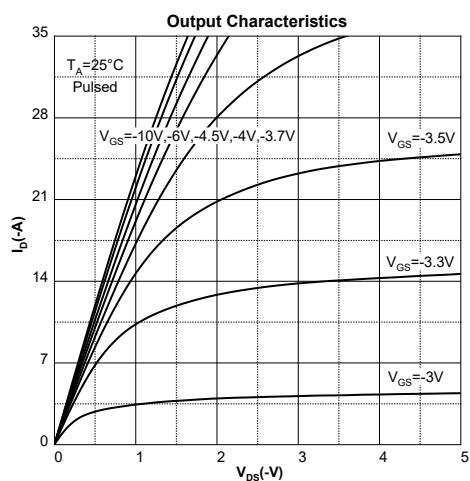
MOSFET ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise noted)

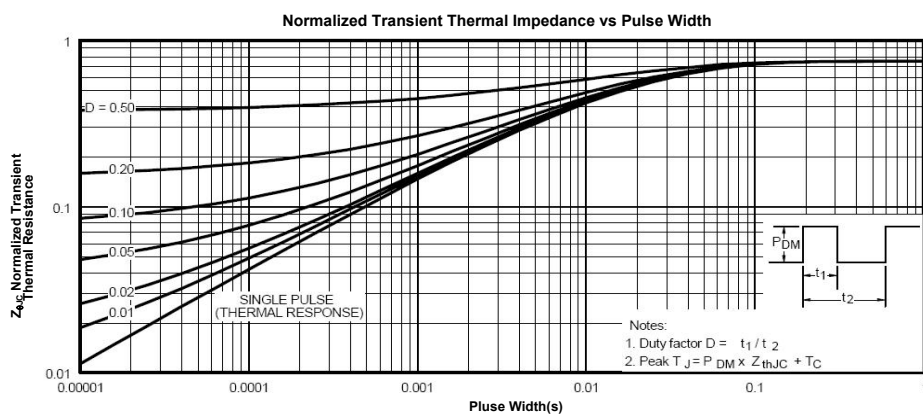
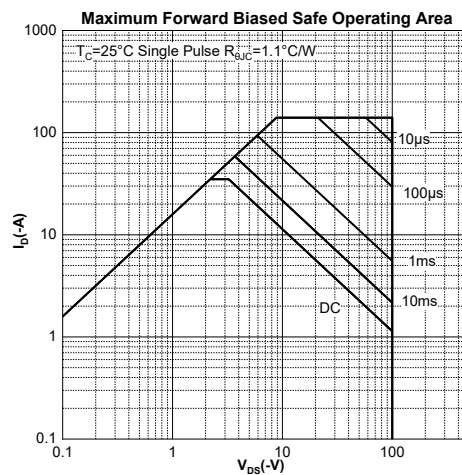
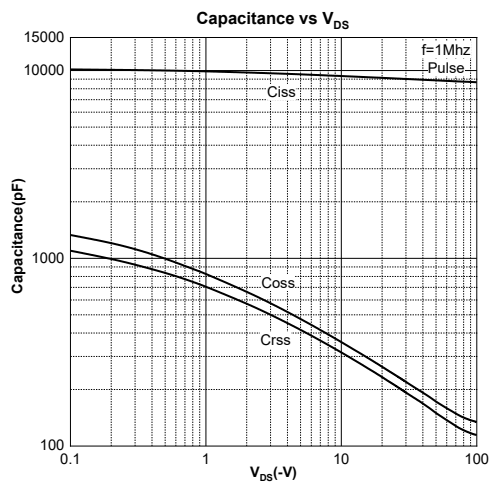
Parameter	Symbol	Test Condition	Min	Type	Max	Unit
Off Characteristics						
Drain-Source Breakdown Voltage	V _{(BR)DSS}	V _{GS} = 0V, I _D = 250μA	-100			V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = -100V, V _{GS} = 0V			-1	μA
Gate-Body Leakage Current	I _{GSS}	V _{GS} = ±20V, V _{DS} = 0V			±100	nA
On Characteristics ⁴						
Gate Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = -250μA	-1	-1.8	-2.4	V
Drain-Source On-Resistance	R _{DS(on)}	V _{GS} = -10V, I _D = -10A		42	55	mΩ
		V _{GS} = -4.5V, I _D = -6A		45	58	
Transconductance	g _{FS}	V _{DS} = -10V, I _D = -10A		32		S
Dynamic Characteristics						
Input Capacitance	C _{iss}	V _{DS} = -25V, V _{GS} = 0V, f = 1MHz		9023		pF
Output Capacitance	C _{oss}			210		
Reverse Transfer Capacitance	C _{rss}			180		
Switching Characteristics						
Total Gate Charge	Q _g	V _{DS} = -50V, V _{GS} = -10V, I _D = -15A		125		nC
Gate-Source Charge	Q _{gs}			21		
Gate-Drain Charge	Q _{gd}			25		
Turn-On Delay Time	t _{d(on)}	V _{DD} = -50V, V _{GS} = -10V, R _G = 9Ω, I _D = -15A		20		ns
Turn-On Rise Time	t _r			78		
Turn-Off Delay Time	t _{d(off)}			43		
Turn-Off Fall Time	t _f			64		
Source-Drain Diode Characteristics						
Diode Forward Voltage ⁴	V _{SD}	V _{GS} = 0V, I _S = -15A			-1.2	V
Diode Continuous Forward Current ¹	I _S	T _C = 25°C			-35	A
Diode Pulse Forward Current ²	I _{SM}				-140	A
Diode Reverse Recovery Time	t _{rr}	I _F = -15A, dI/dt = 100A/μs		95		ns
Diode Reverse Recovery Charge	Q _{rr}			145		nC

Notes:

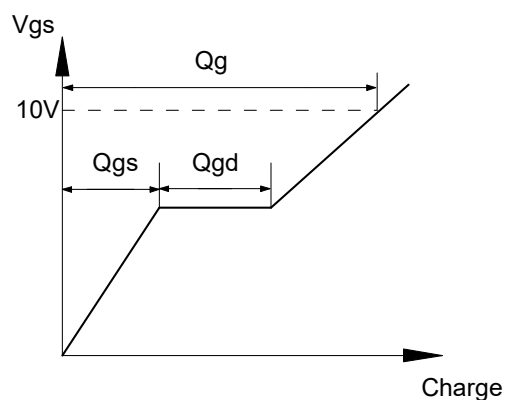
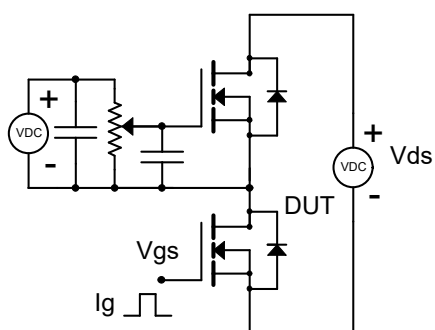
- 1.The maximum current rating is limited by package. And device mounted on a large heatsink.
- 2.Pulse Test: Pulse Width ≤ 10μs, duty cycle ≤ 1%.
- 3.EAS condition: V_{DD} = -0V, V_{GS} = -10V, L = 0.5mH, R_G = 25Ω Starting T_J = 25°C.
- 4.Pulse Test: Pulse Width ≤ 300μs, duty cycle ≤ 2%.
- 5.The power 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

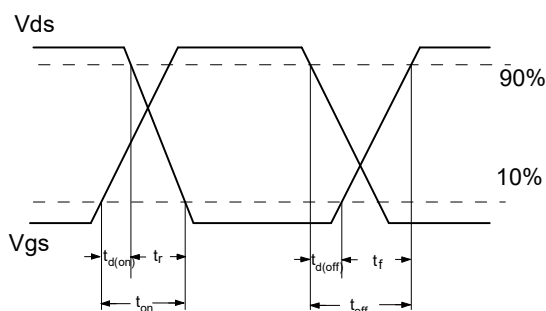
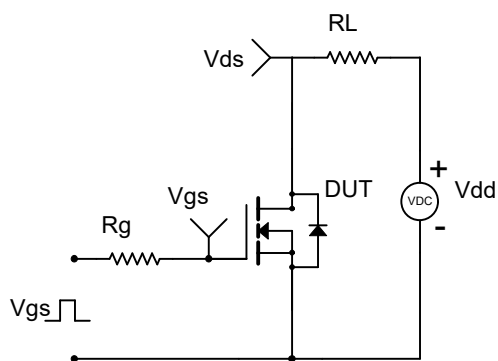




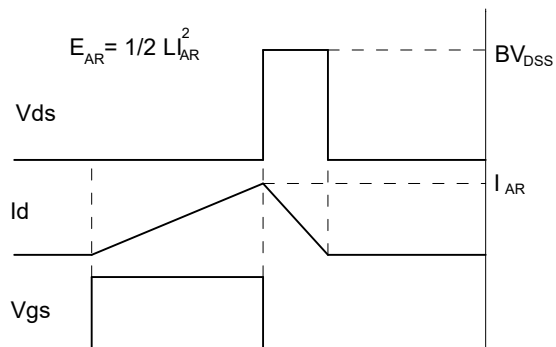
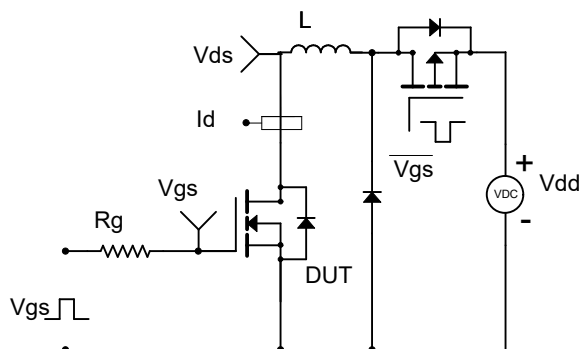
Gate Charge Test Circuit & Waveform

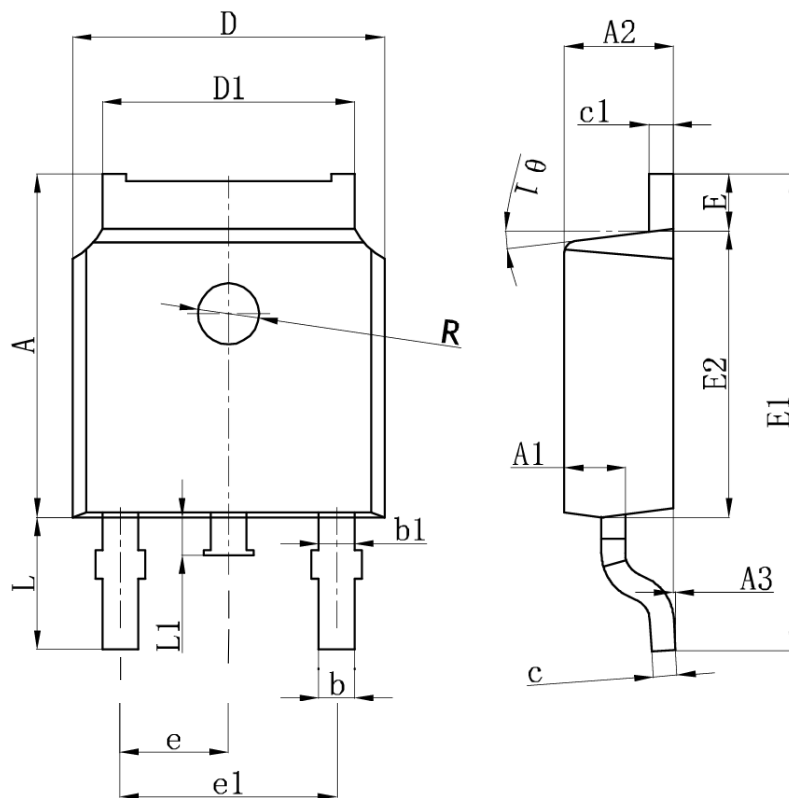


Resistive Switching Test Circuit & Waveform



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	

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- 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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