

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
600V	57mΩ@10V	48A

Feature

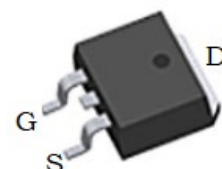
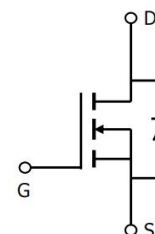
- Super-Junction MOSFET
- High Ruggedness
- Low $R_{DS(ON)}$
- 100% Avalanche Tested

Application

- PFC/LLC
- PC Power
- LED Lighting

Package Marking and Ordering Information

Part Number	Package	Marking	Packing	Reel Size	Tape Width	Qty
GPJT60R068TH	TO-263-2L	JT60R068T	NA	NA	NA	800PCS

TO-263-2L

Schematic diagram

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

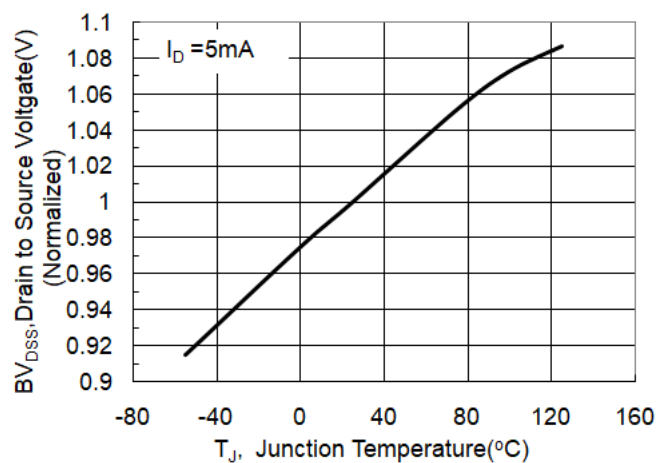
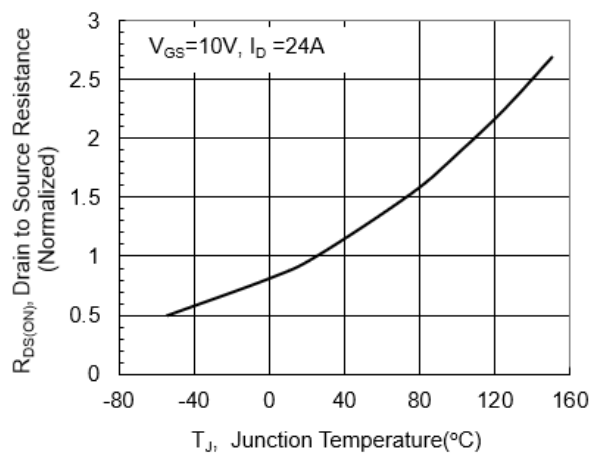
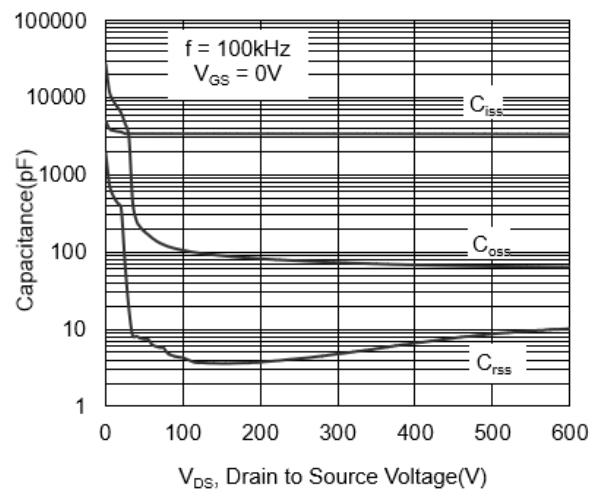
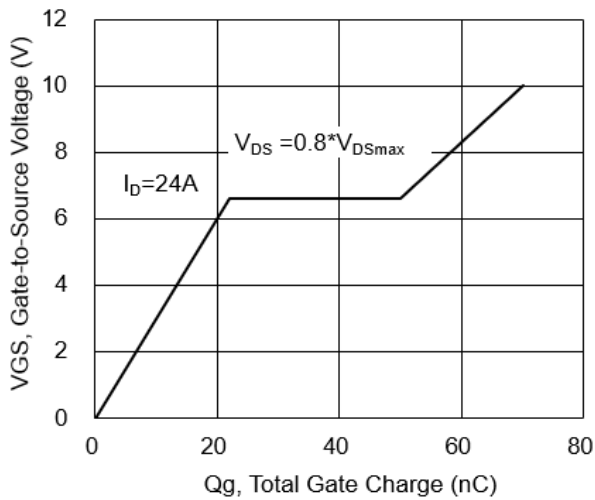
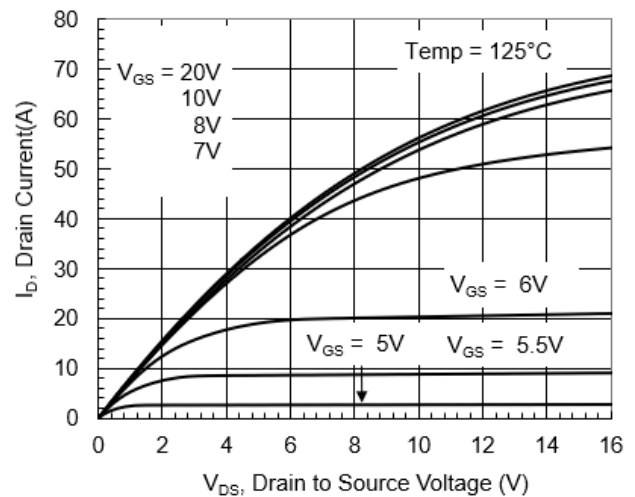
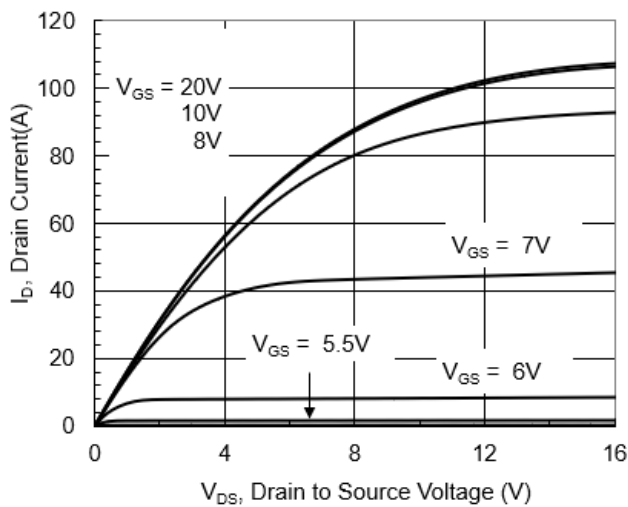
Parameter		Symbol	Value	Unit
Drain - Source Voltage		V_{DS}	600	V
Gate - Source Voltage		V_{GS}	±30	V
Continuous Drain Current(Note1)	$T_C = 25^\circ\text{C}$	I_D	48	A
	$T_C = 125^\circ\text{C}$	I_D	21.5	A
Pulsed Drain Current(Note1)		I_{DM}	144	A
Single Pulsed Avalanche Energy(Note2)		E_{AS}	750	mJ
Power Dissipation	$T_C = 25^\circ\text{C}$	P_D	284	W
Thermal Resistance, Junction to Case		R_{thjc}	0.44	$^\circ\text{C/W}$
Thermal Resistance, Junction to Ambient		R_{thja}	39	$^\circ\text{C/W}$
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)

Parameter	Symbol	Test Condition	Min	Type	Max	Unit
Off Characteristics						
Drain - Source Breakdown Voltage	BV _{DSS}	V _{GS} = 0V, I _D = 250μA	600			V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = 600V, V _{GS} = 0V			10	μA
Gate - Body Leakage Current	I _{GSS}	V _{GS} = ±30V, V _{DS} = 0V			±100	nA
On Characteristics						
Gate Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = 250μA	3	4	5	V
Drain-Source On-Resistance	R _{DS(on)}	V _{GS} = 10V, I _D = 24A		57	68	mΩ
Dynamic Characteristics						
Input Capacitance	C _{iss}	V _{DS} = 100V, V _{GS} = 0V, f = 100kHz		3400		pF
Output Capacitance	C _{oss}			120		
Reverse Transfer Capacitance	C _{rss}			4.3		
Gate Resistance	R _g	V _{DS} = 0V, V _{GS} = 0V, f = 1MHz		1.9		Ω
Switching Characteristics						
Total Gate Charge	Q _g	V _{DS} = 480V, V _{GS} = 10V, I _D = 24A		70		nC
Gate-Source Charge	Q _{gs}			22		
Gate-Drain Charge	Q _{gd}			28		
Turn-On Delay Time	t _{d(on)}	V _{DS} = 400V, V _{GS} = 10V, I _D = 24A,R _G = 2.5Ω		32		ns
Turn-On Rise Time	t _r			32		
Turn-Off Delay Time	t _{d(off)}			42		
Turn-Off Fall Time	t _f			22.5		
Source - Drain Diode Characteristics						
Diode Forward Voltage	V _{SD}	V _{GS} = 0V, I _S = 48A		0.88	1.2	V
Body Diode Reverse Recovery Time	t _{rr}	I _S =24A, dI/dt = 100 A/μs,V _{GS} = 0V		200		ns
Body Diode Reverse Recovery Charge	Q _{rr}			1.4		uC
Reverse Recovery Of Peak Current	I _{rrm}			13.7		A

Notes :

1. Drain current is limited by maximum junction temperature.
2. L = 60mH, V_{DD} = 50V, R_G = 25Ω, Starting at T_J = 25°C

Typical Characteristics


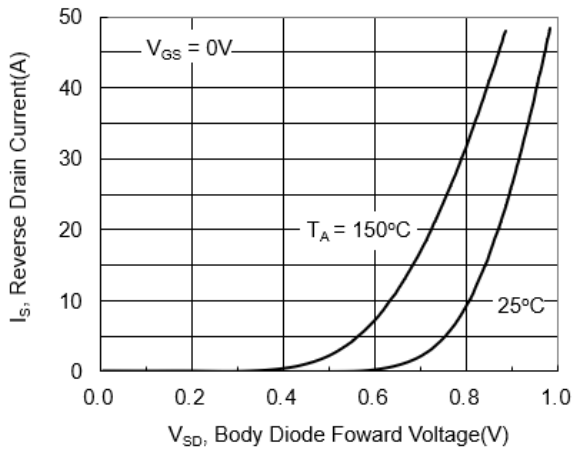


Fig 7 . Forward characteristics of reverse diode

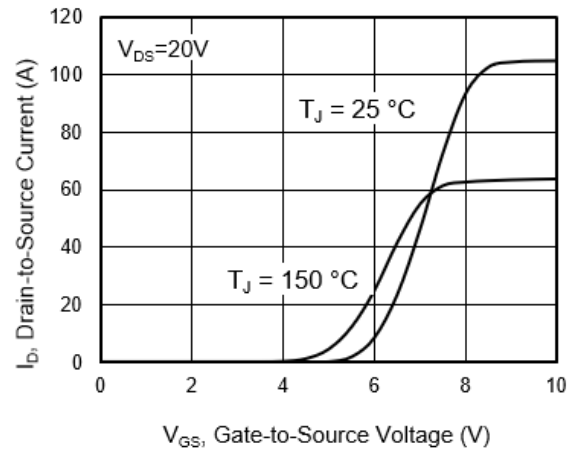


Fig 8 . Transfer characteristics

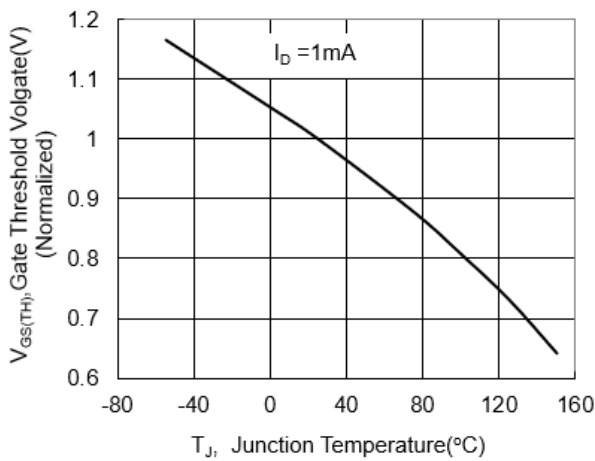


Fig 9 . $V_{GS(TH)}$ vs junction temperature

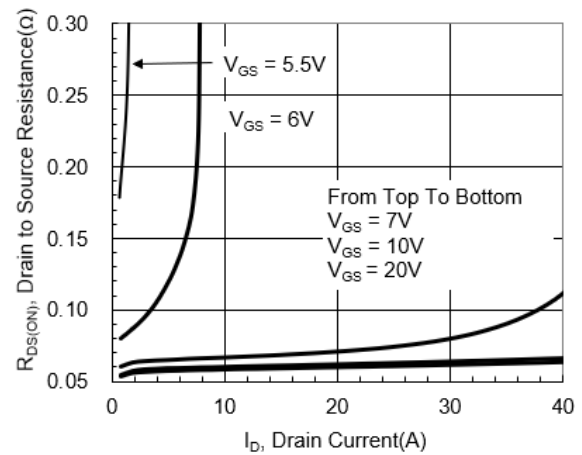
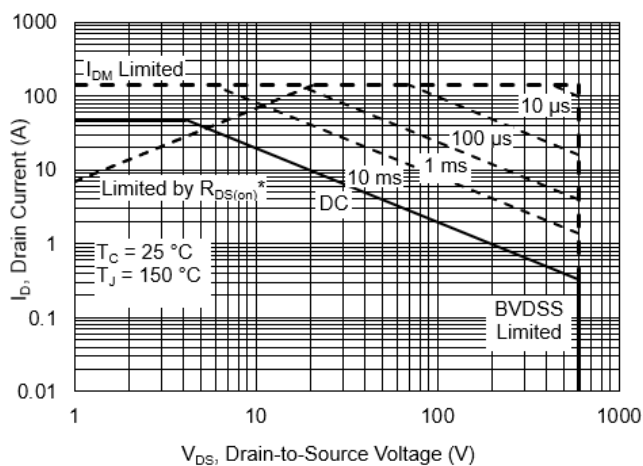


Fig 10. Drain-source on-state resistance $T_J = 25^\circ\text{C}$



**Fig 11. Safe operating area(TO-263)
 $T_c = 25^\circ\text{C}$**

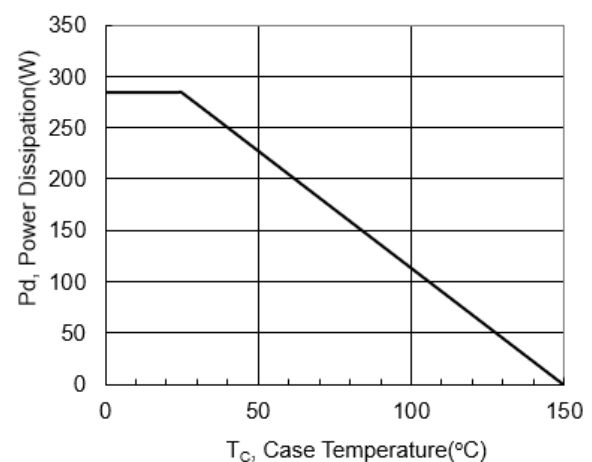


Fig 12 . Power dissipation

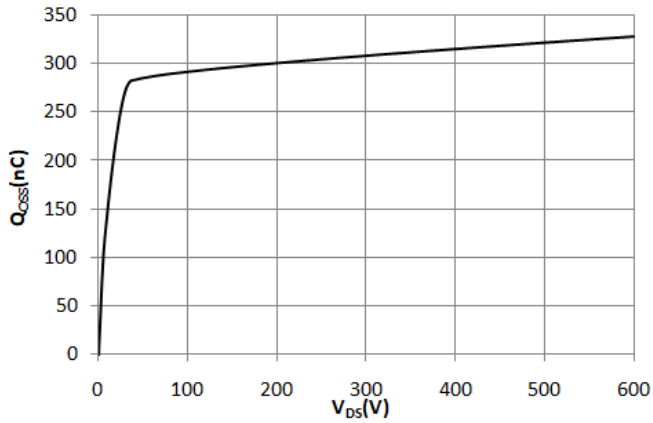


Fig 13 . Q_{OSS} vs Drain-Source Voltage

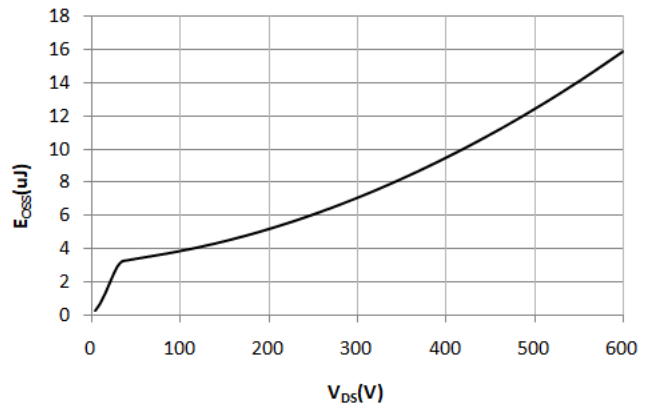


Fig 14 . E_{OSS} vs Drain-Source Voltage

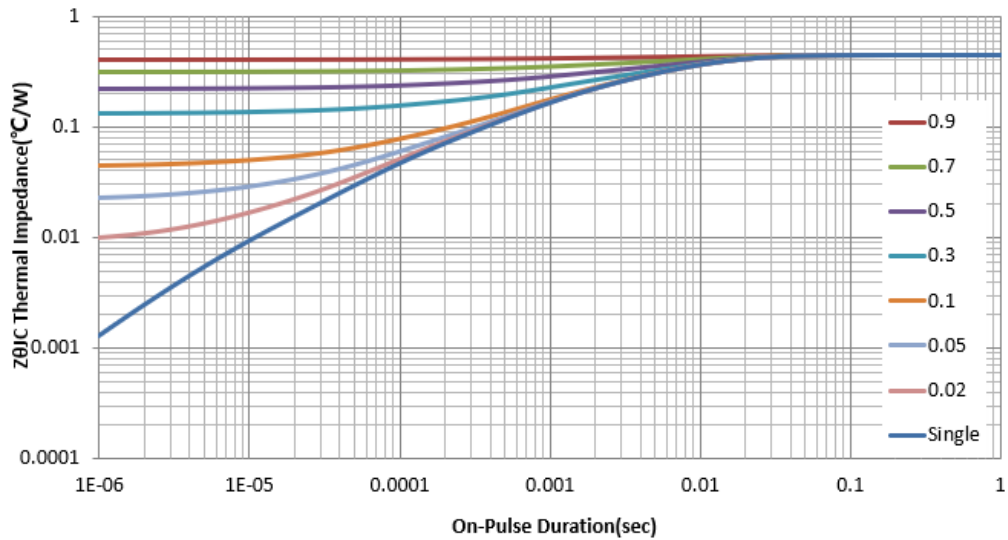
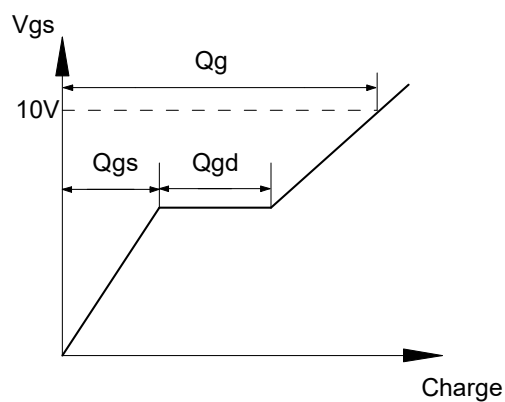
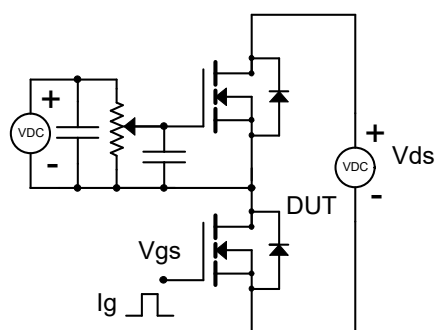
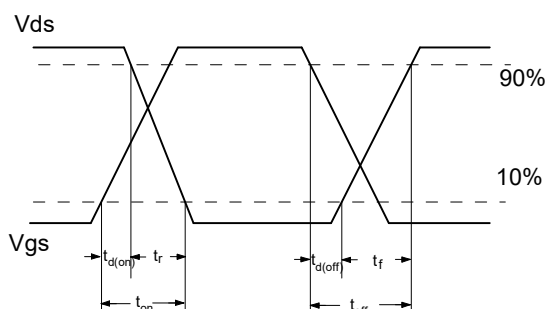
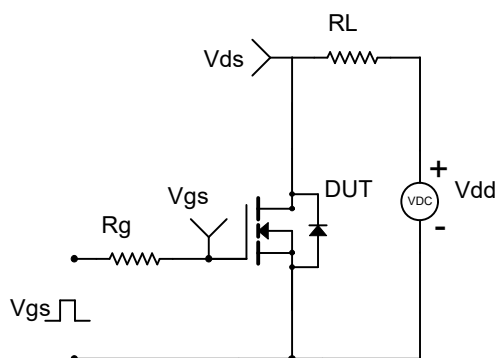
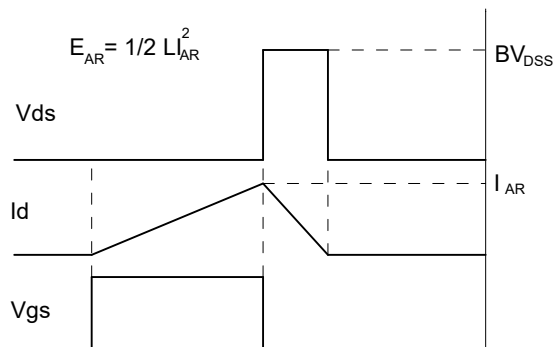
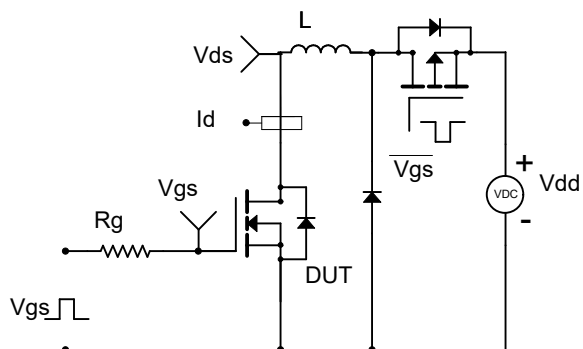
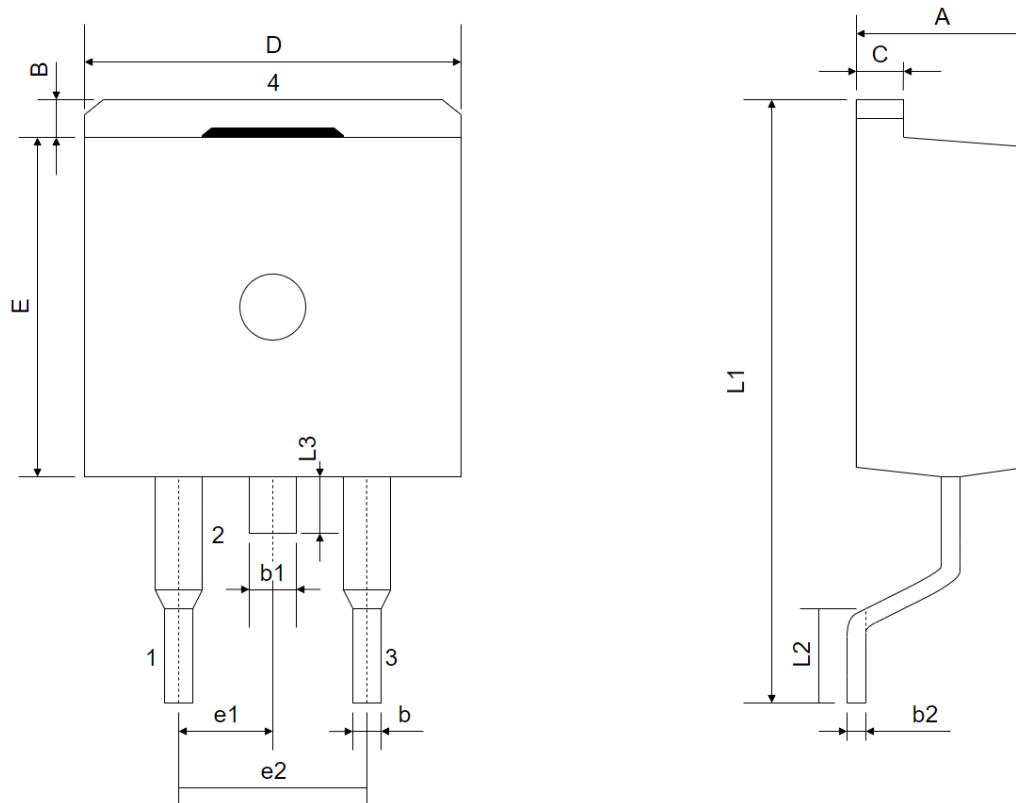


Fig 15. Transient thermal impedance

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.