

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
68V	6.9m Ω @10V	80A

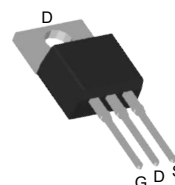
Feature

- Trench Technology Power MOSFET
- Fast Switching
- Low Gate Charge
- High Avalanche Current
- Low Reverse Transfer Capacitances
- 100% UIS Tested

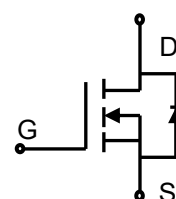
Application

- BLDC Motor drive systems
- Battery Management
- DC/DC and AC/DC Converter

TO-220-3L-C



Schematic diagram



Package Marking and Ordering Information

Part Number	Package	Marking	Packing	Reel Size	Tape Width	Qty
GPM074NE6NTB	TO-220-3L-C	M074NE6N	Tube	-	-	50pcs

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

Parameter	Symbol	Value	Unit
Drain - Source Voltage	V_{DS}	68	V
Gate - Source Voltage	V_{GS}	± 20	V
Continuous Drain Current ¹	$T_C = 25^\circ\text{C}$	I_D	80 A
	$T_C = 100^\circ\text{C}$	I_D	55 A
Pulsed Drain Current ²	I_{DM}	320	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	167 W
Thermal Resistance from Junction to Ambient ⁶	$R_{\theta JA}$	62.5	$^\circ\text{C}/\text{W}$
Thermal Resistance from Junction to Case	$R_{\theta JC}$	0.9	$^\circ\text{C}/\text{W}$
Junction Temperature	T_J	150	$^\circ\text{C}$
Storage Temperature	T_{STG}	-55~ +150	$^\circ\text{C}$

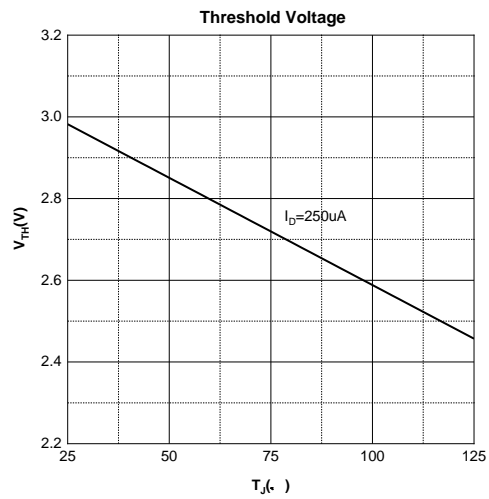
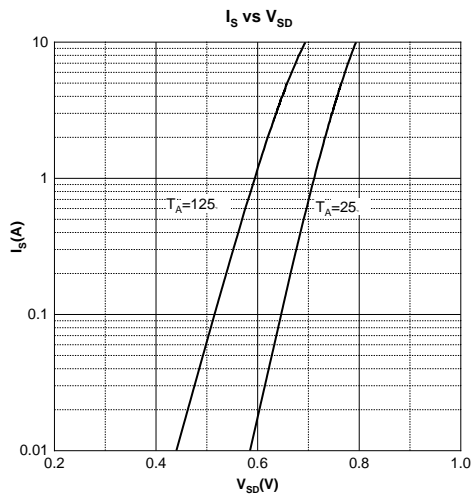
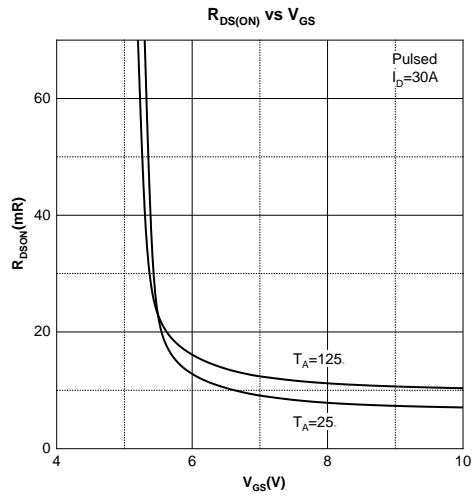
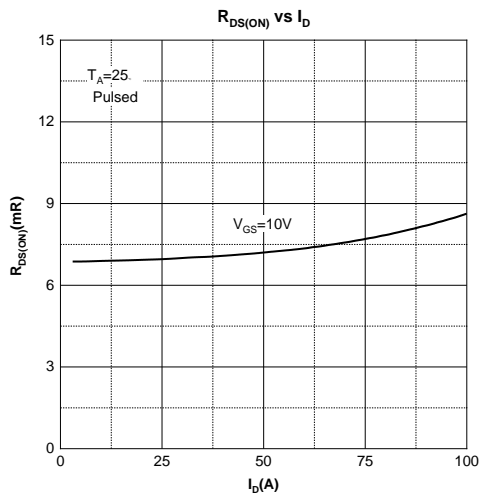
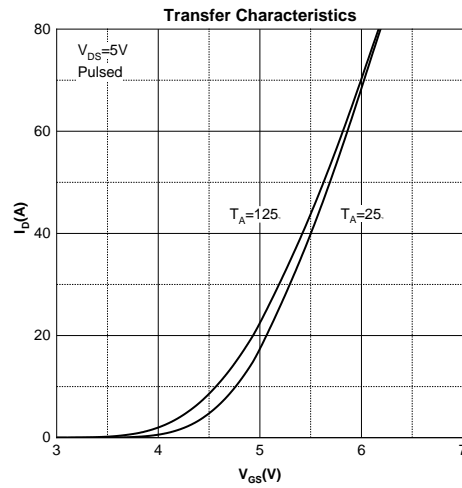
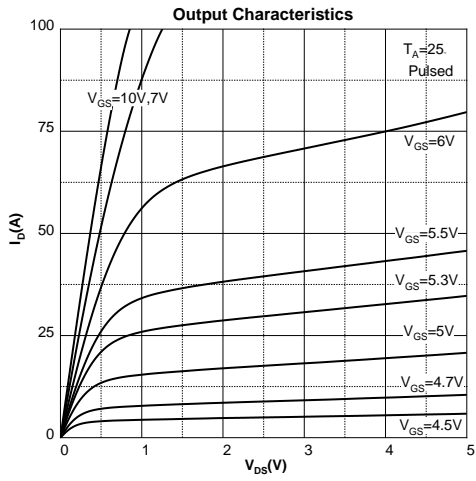
MOSFET ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise noted)

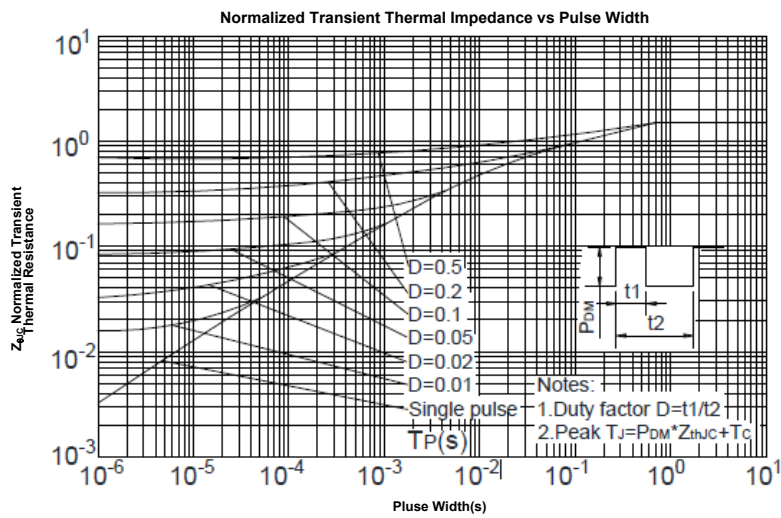
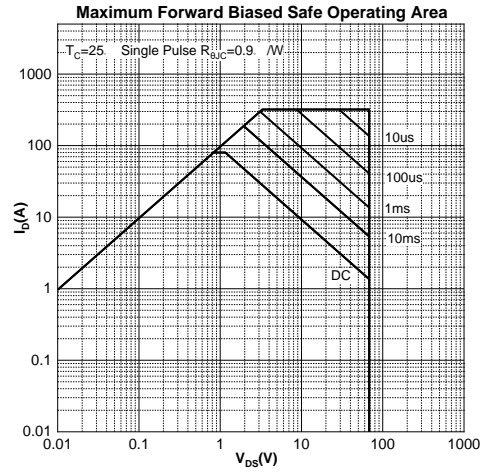
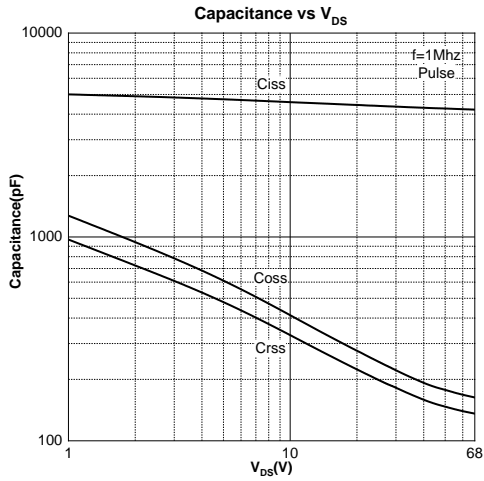
Parameter	Symbol	Test Condition	Min	Type	Max	Unit
Off Characteristics						
Drain - Source Breakdown Voltage	V _{(BR)DSS}	V _{GS} = 0V, I _D = 250μA	68			V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = 68V, V _{GS} = 0V			1	μA
Gate - Body Leakage Current	I _{GSS}	V _{GS} = ±20V, V _{DS} = 0V			±100	nA
On Characteristics⁴						
Gate Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = 250μA	2	3	4	V
Drain-source On-resistance	R _{DS(on)}	V _{GS} = 10V, I _D = 30A		6.9	9.0	mΩ
Dynamic Characteristics						
Input Capacitance	C _{iss}	V _{DS} = 30V, V _{GS} = 0V, f = 1MHz		4290		pF
Output Capacitance	C _{oss}			206		
Reverse Transfer Capacitance	C _{rss}			172		
Gate Resistance	R _g	V _{DS} = 0V, V _{GS} = 0V, f = 1MHz		1		Ω
Switching Characteristics						
Total Gate Charge	Q _g	V _{DS} = 35V, V _{GS} = 10V, I _D = 30A		81		nC
Gate-source Charge	Q _{gs}			23		
Gate-drain Charge	Q _{gd}			24		
Turn-on Delay Time	t _{d(on)}	V _{DD} = 30V, V _{GS} = 10V, I _D = 30A, R _G = 3Ω		18		ns
Turn-on Rise Time	t _r			85		
Turn-off Delay Time	t _{d(off)}			48		
Turn-off Fall Time	t _f			29		
Source - Drain Diode Characteristics						
Diode Continuous Forward Current	I _S				80	A
Diode Pulse Current	I _{SM}				320	A
Diode Forward Voltage ⁴	V _{SD}	V _{GS} = 0V, I _S = 30A			1.4	V
Body Diode Reverse Recovery Time	t _{rr}	I _F = 20A, dI _F /dt = 100A/μs		82		Ns
Body Diode Reverse Recovery Charge	Q _{rr}	I _F = 20A, dI _F /dt = 100A/μs		53		nC

Notes :

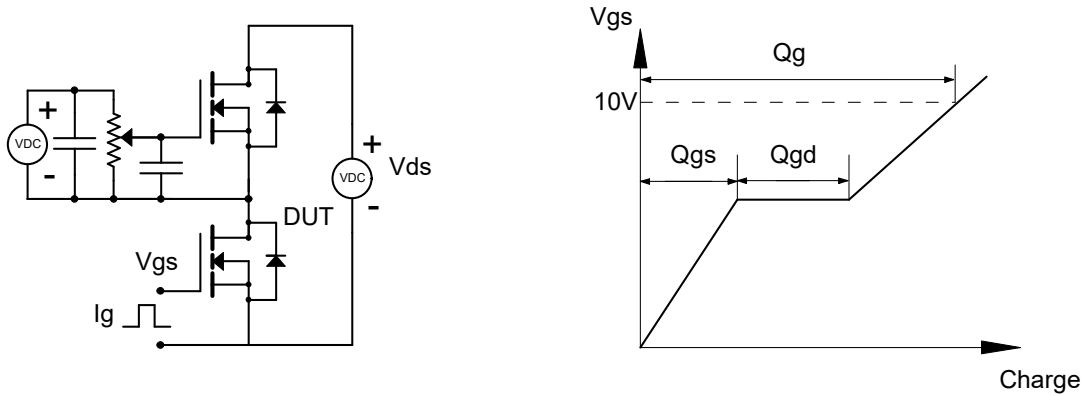
- 1.The maximum current rating is limited by package.And device mounted on a large heatsink
- 2.Pulse Test : Pulse Width ≤ 10μs, duty cycle ≤ 1%.
- 3.E_{AS} condition: V_{DD} = 30V, V_{GS} = 10V, L = 0.5mH, R_G = 25Ω Starting T_J = 25°C.
- 4.Pulse Test : Pulse Width ≤ 300μs, duty cycle ≤ 2%.
- 5.The 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

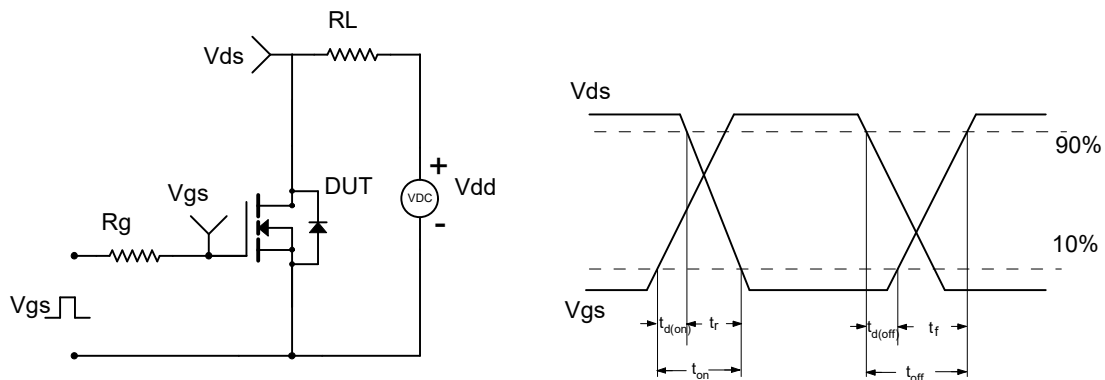




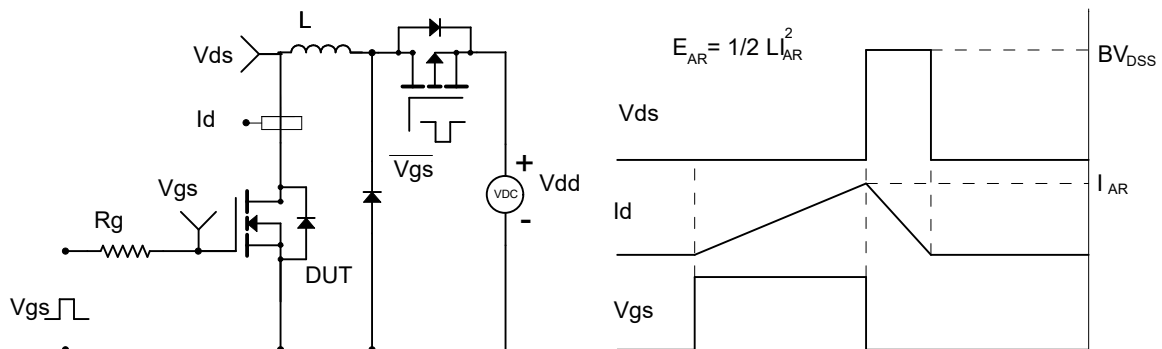
Gate Charge Test Circuit & Waveform



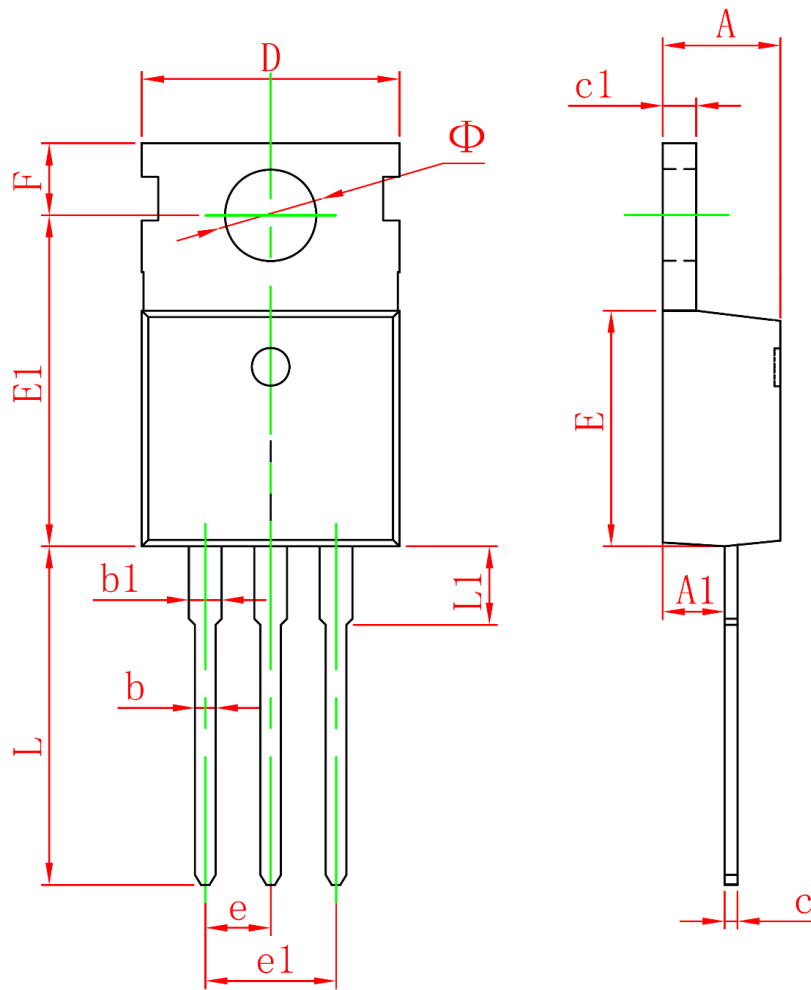
Resistive Switching Test Circuit & Waveform



Unclamped Inductive Switching (UIS) Test Circuit & Waveforms



TO-220-3L-C Package Information



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	4.300	4.700	0.169	0.185
A1	2.200	2.600	0.087	0.102
b	0.600	1.000	0.024	0.039
b1	1.150	1.600	0.045	0.063
c	0.300	0.700	0.012	0.028
c1	1.000	1.400	0.039	0.055
D	9.600	10.400	0.378	0.409
E	8.800	9.750	0.346	0.384
E1	11.800	13.300	0.465	0.524
e	2.540BSC		0.100BSC	
e1	4.840	5.320	0.191	0.209
F	2.600	3.000	0.102	0.118
L	12.600	14.800	0.496	0.583
L1	2.800	4.200	0.110	0.165
Φ	3.400	4.000	0.134	0.157

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.