

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
-60V	9.5mΩ@-10V	-70A
	12mΩ@-4.5V	

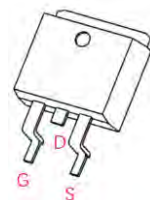
Feature

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

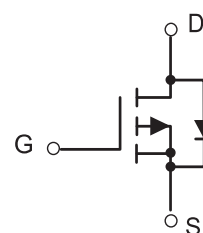
Application

- Power Switching Application

TO-263-2L



Schematic diagram



Package Marking and Ordering Information

Part Number	Package	Marking	Packing	Reel Size	Tape Width	Qty
GPM120P06LTHY	TO-263-2L	M120P06L	Reel & Tape	330mm	24mm	800pcs

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

Parameter		Symbol	Value	Unit
Drain - Source Voltage		V_{DS}	-60	V
Gate - Source Voltage		V_{GS}	±20	V
Continuous Drain Current ¹	$T_C = 25^\circ\text{C}$	I_D	-70	A
	$T_C = 100^\circ\text{C}$	I_D	-49	A
Pulsed Drain Current ²		I_{DM}	-280	A
Single Pulsed Avalanche Current ³		I_{AS}	-40	A
Single Pulsed Avalanche Energy ³		E_{AS}	400	mJ
Power Dissipation ⁵		P_D	167	W
$T_C = 25^\circ\text{C}$				
Thermal Resistance from Junction to Ambient ⁶		$R_{\theta JA}$	40	$^\circ\text{C/W}$
Thermal Resistance from Junction to Case		$R_{\theta JC}$	0.75	$^\circ\text{C/W}$
Operating Junction and Storage Temperature Range		T_J, T_{STG}	-55~ +150	$^\circ\text{C}$

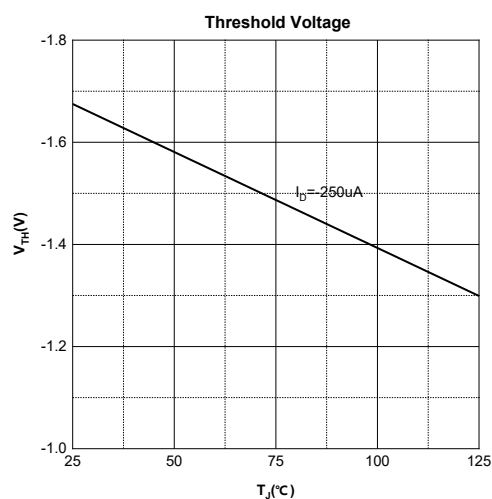
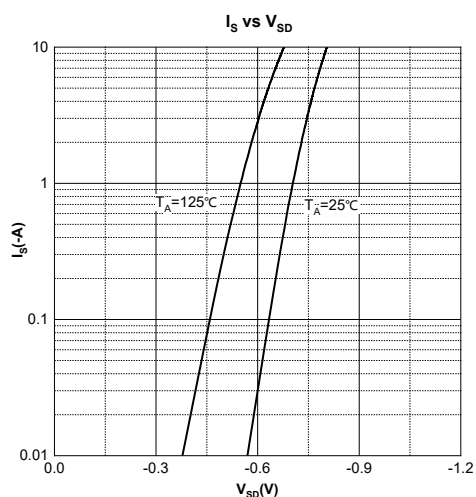
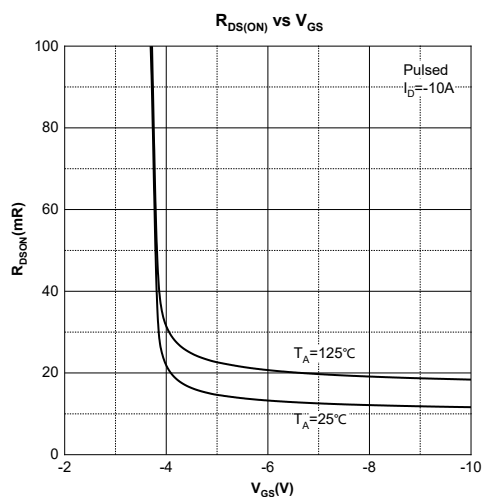
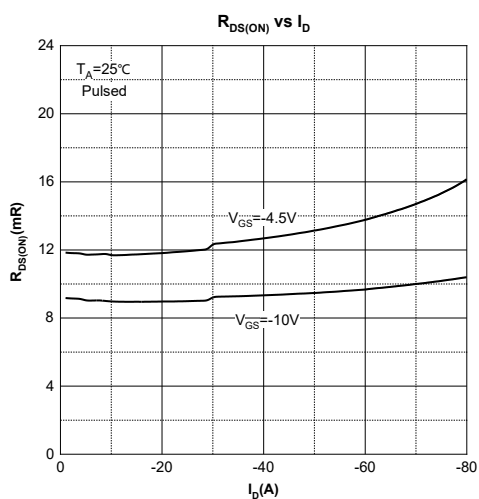
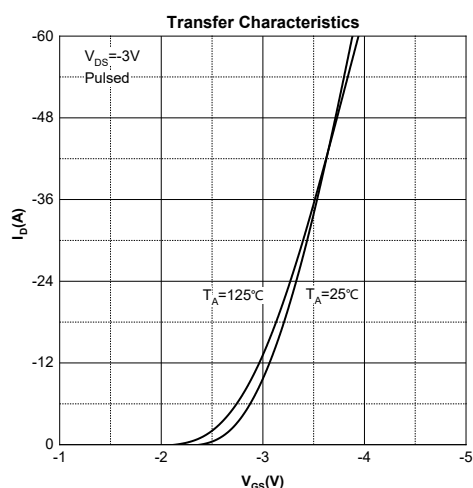
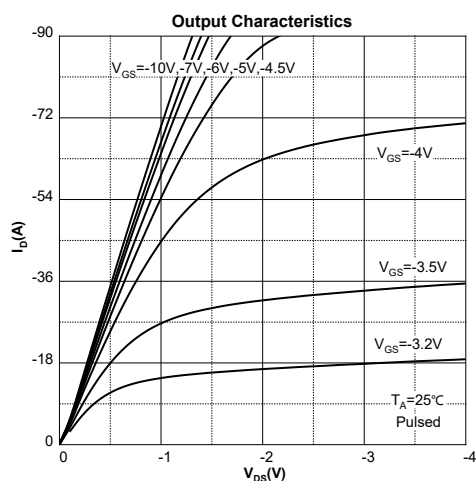
MOSFET ELECTRICAL CHARACTERISTICS ($T_J = 25^\circ\text{C}$ unless otherwise noted)

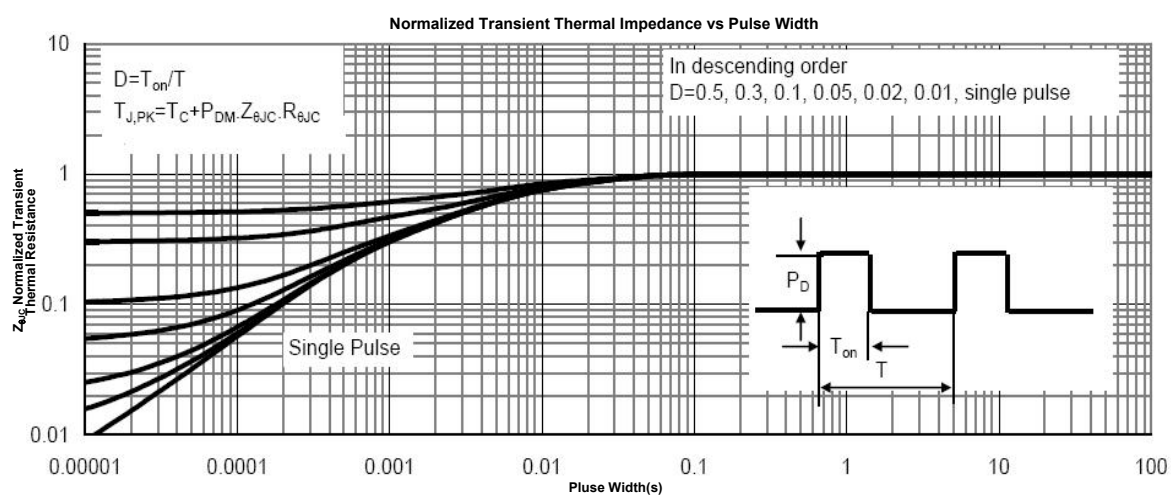
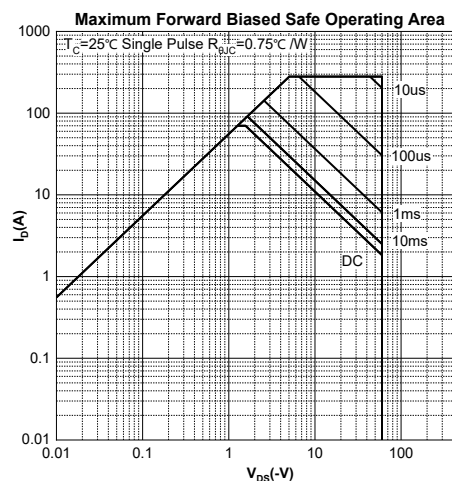
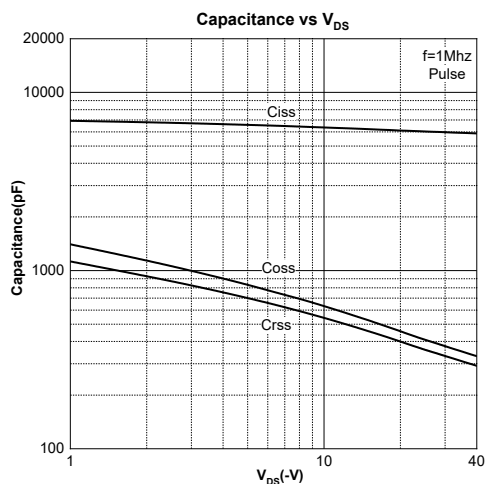
Parameter	Symbol	Test Condition	Min	Type	Max	Unit
Off Characteristics						
Drain - Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = -250\mu A$	-60			V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = -60V, V_{GS} = 0V$			-1	μA
Gate - Body Leakage Current	I_{GSS}	$V_{GS} = \pm 20V, V_{DS} = 0V$			± 100	nA
On Characteristics ⁴						
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = -250\mu A$	-1	-1.7	-3	V
Drain-source On-resistance	$R_{DS(on)}$	$V_{GS} = -10V, I_D = -20A$		9.5	14	m Ω
		$V_{GS} = -4.5V, I_D = -20A$		12	18	
Dynamic Characteristics						
Input Capacitance	C_{iss}	$V_{DS} = -30V, V_{GS} = 0V, f = 1MHz$		5600		pF
Output Capacitance	C_{oss}			350		
Reverse Transfer Capacitance	C_{rss}			262		
Gate Resistance	R_g	$V_{DS} = 0V, V_{GS} = 0V, f = 1MHz$		4.3		Ω
Switching Characteristics						
Total Gate Charge	Q_g	$V_{DS} = -30V, V_{GS} = -10V, I_D = -18A$		110		nC
Gate-source Charge	Q_{gs}			16		
Gate-drain Charge	Q_{gd}			25		
Turn-on Delay Time	$t_{d(on)}$	$V_{DD} = -30V, V_{GS} = -10V, R_L = 1.5\Omega, R_G = 3\Omega$		19		ns
Turn-on Rise Time	t_r			21		
Turn-off Delay Time	$t_{d(off)}$			56		
Turn-off Fall Time	t_f			36		
Source - Drain Diode Characteristics						
Diode Forward Voltage ⁴	V_{SD}	$V_{GS} = 0V, I_S = -20A$			-1.2	V

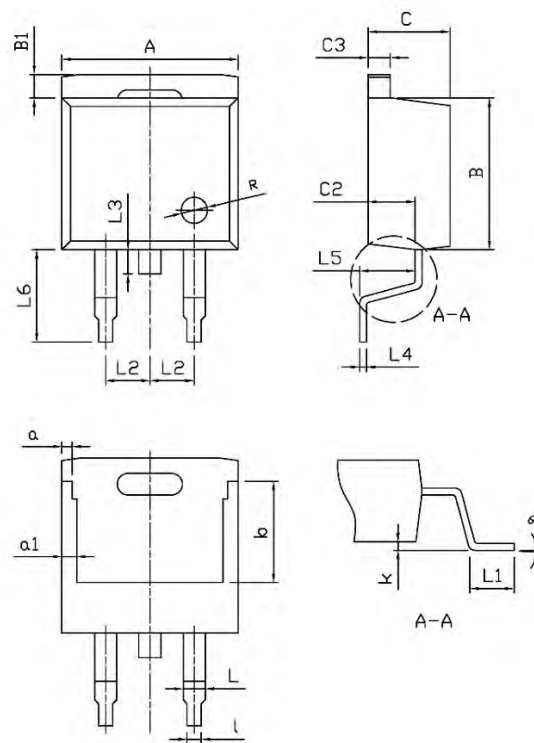
Notes :

- 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: $V_{DD} = -30V, V_{GS} = -10V, L = 0.5mH, R_G = 25\Omega$ 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





TO-263-2L Package Information


Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	10.000	10.400	0.394	0.409
B	8.500	8.900	0.335	0.350
B1	1.060	1.460	0.042	0.057
C	4.490	4.890	0.177	0.193
C2	2.540	2.840	0.100	0.112
C3	1.170	1.370	0.046	0.054
L	1.120	1.420	0.044	0.056
L1	2.340	2.740	0.092	0.108
L2	2.540TYB		0.1TYB	
L3	1.200	1.600	0.047	0.063
L4	0.281	0.481	0.011	0.019
L5	2.540	3.040	0.100	0.120
L6	5.050	5.550	0.199	0.219
R	1.500TYB		0.059TYB	
α	0.455	0.855	0.018	0.034
α1	0.700	1.100	0.028	0.043
b	5.648	5.948	0.222	0.234
k	0.000	0.250	0.000	0.010
l	0.700	0.960	0.028	0.038
θ	0°	9°	0°	9°

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.