

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
-60V	11mΩ@-10V	-70A

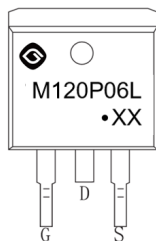
Feature

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

Application

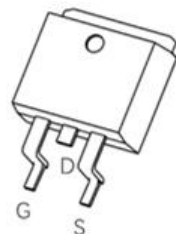
- Power Switching Application

MARKING:

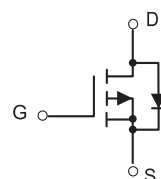


M120P06L = Device Code
 XX = Date Code
 Solid Dot = Green Indicator

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}	-60	V
Gate - Source Voltage	V_{GS}	± 20	V
Continuous Drain Current ¹	I_D	-70	A
Pulsed Drain Current ²	I_{DM}	-280	A
Single Pulsed Avalanche Current ³	I_{AS}	-47	A
Single Pulsed Avalanche Energy ³	E_{AS}	519	mJ
Power Dissipation ⁵	P_D	167	W
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	$^\circ\text{C/W}$
Junction Temperature	T_J	150	$^\circ\text{C}$
Storage Temperature	T_{STG}	-55~ +150	$^\circ\text{C}$

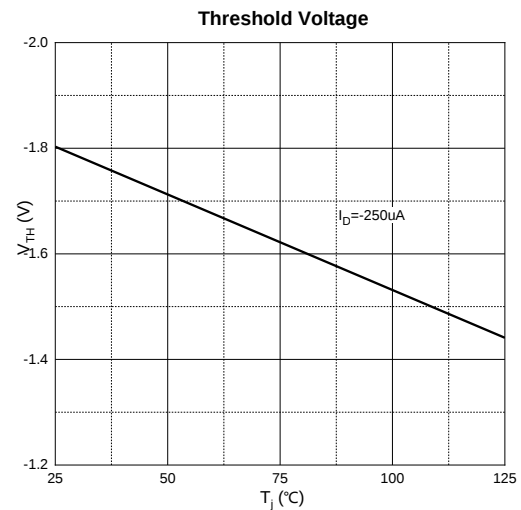
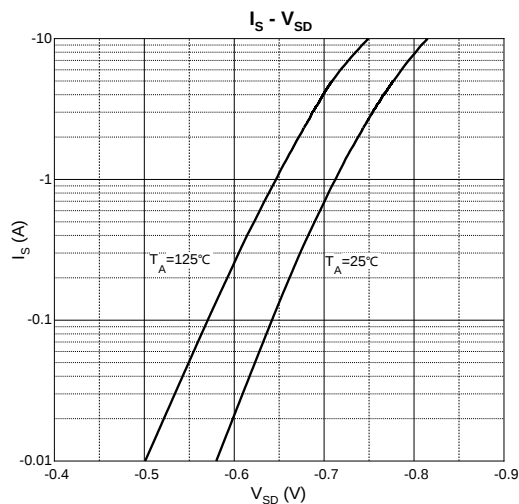
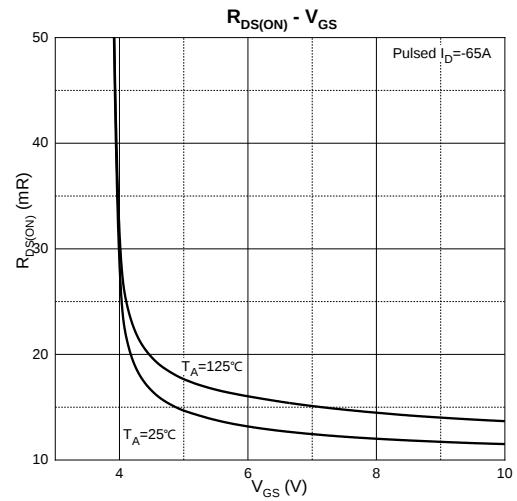
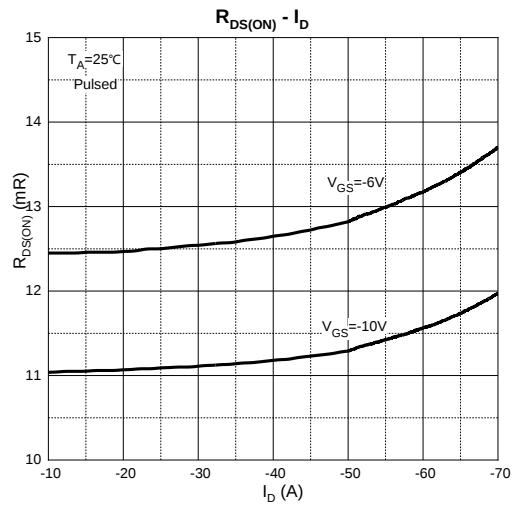
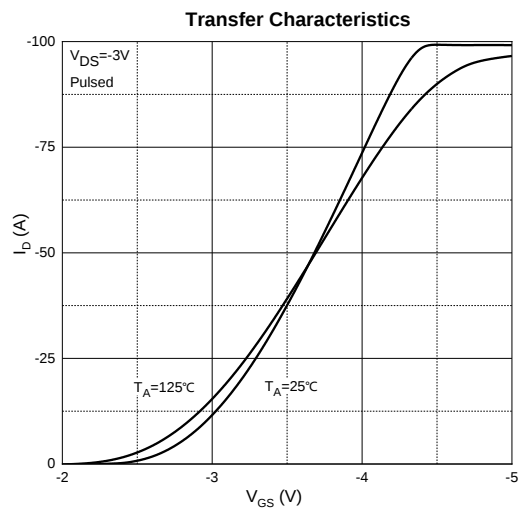
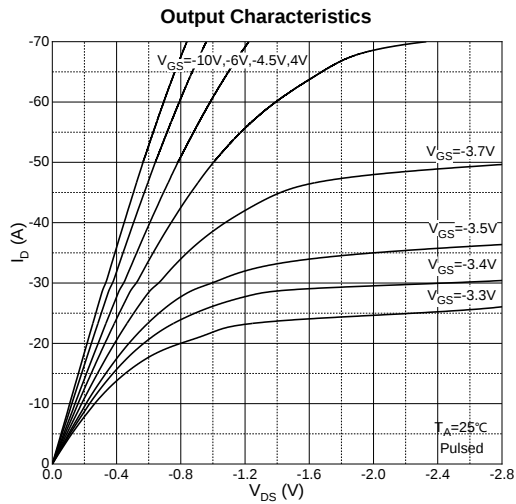
MOSFET ELECTRICAL CHARACTERISTICS (T_J = 25°C unless otherwise noted)

Parameter	Symbol	Test Condition	Min	Type	Max	Unit
Off Characteristics						
Drain - Source Breakdown Voltage	V _{(BR)DSS}	V _{GS} = 0V, I _D = -250μA	-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} = ±20V, V _{DS} = 0V			±100	nA
On Characteristics ⁴						
Gate Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = -250μA	-1.5	-1.8	-3.5	V
Drain-source On-resistance	R _{DS(on)}	V _{GS} = -10V, I _D = -20A		11	15	mΩ
Dynamic Characteristics						
Input Capacitance	C _{iss}	V _{DS} = -10V, V _{GS} = 0V, f = 1MHz		6006		pF
Output Capacitance	C _{oss}			447		
Reverse Transfer Capacitance	C _{rss}			376		
Gate Resistance	R _g	V _{DS} = 0V, V _{GS} = 0V, f = 1MHz		2		Ω
Switching Characteristics						
Total Gate Charge	Q _g	V _{DS} = -15V, V _{GS} = -10V, I _D = -20A		112.2		nC
Gate-source Charge	Q _{gs}			17.1		
Gate-drain Charge	Q _{gd}			27.1		
Turn-on Delay Time	t _{d(on)}	V _{DD} = -15V, V _{GS} = -10V, R _L =2.14 Ω, R _G = 3Ω		11		ns
Turn-on Rise Time	t _r			14		
Turn-off Delay Ttime	t _{d(off)}			36		
Turn-off Fall Time	t _f			15		
Source - Drain Diode Characteristics						
Diode Forward Voltage ⁴	V _{SD}	V _{GS} = 0V, I _S = -20A			-1.2	V

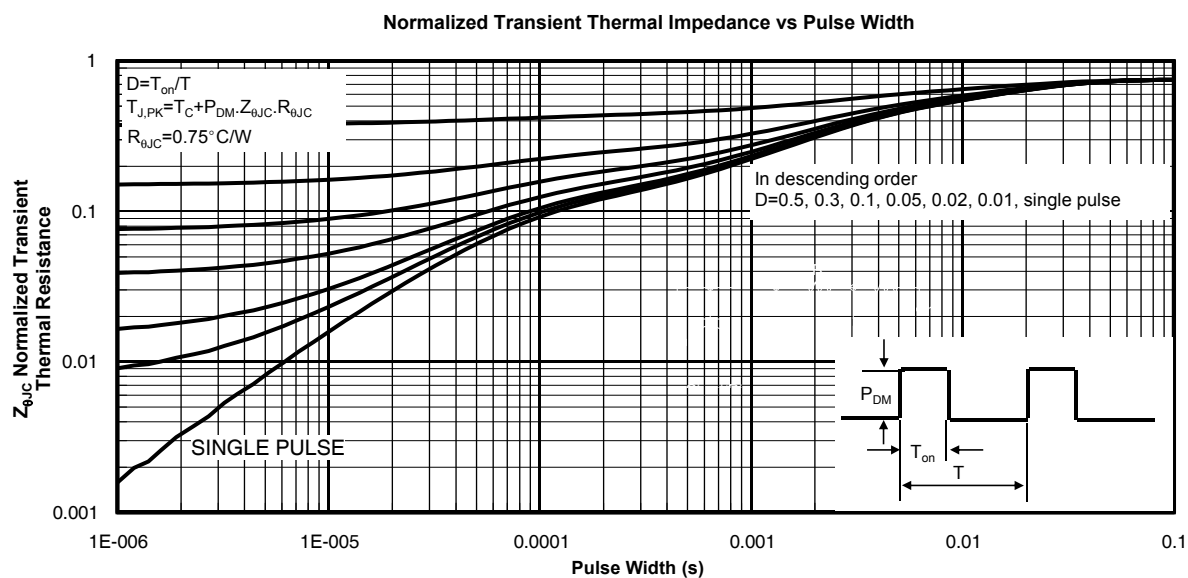
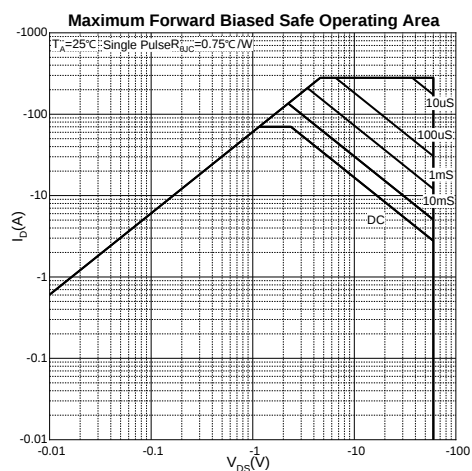
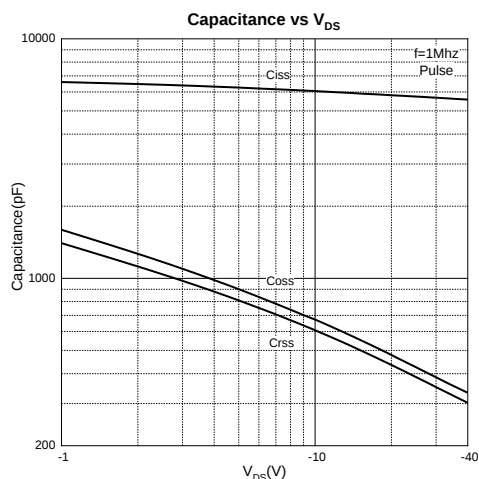
Notes :

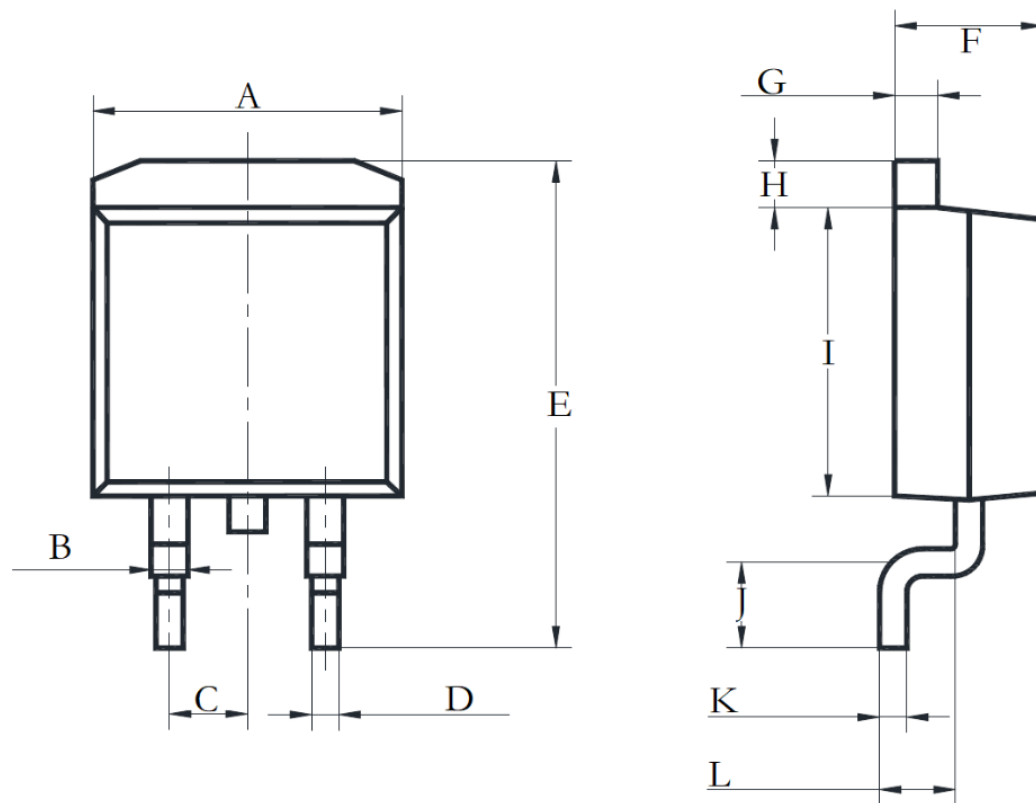
- 1.The maximum current rating is limited by package.And device mounted on a large heatsink
- 2.Pulse Test : Pulse Width ≤ 10μs, duty cycle ≤ 1%.
- 3.E_{AS} condition: V_{DD} = -30V, V_{GS} = -10V, L = 0.5mH, R_G = 25Ω Starting T_J = 25°C.
- 4.Pulse Test : Pulse Width ≤ 300μs, duty cycle ≤ 2%.
- 5.The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



Typical Characteristics



TO-263-2L Package Information


Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	9.600	10.500	0.378	0.413
B	1.000	1.400	0.039	0.055
C	2.540REF		0.100REF	
D	0.680	0.940	0.027	0.037
E	14.600	15.880	0.575	0.625
F	4.400	4.800	0.173	0.189
G	1.140	1.400	0.045	0.055
H	1.140	1.400	0.045	0.055
I	8.250	9.650	0.325	0.380
J	2.290	2.790	0.090	0.110
K	0.360	0.650	0.014	0.026
L	2.030	2.790	0.080	0.110