TO-263-7L N

N-CHANNEL MOSFET in a TO-263-7L Plastic Package.

$V_{DS}$=100V $I_D$=300A

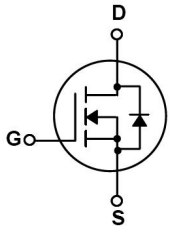
$R_{DS(on)}$@10V≤1.3mΩ(Type. 1.1mΩ)

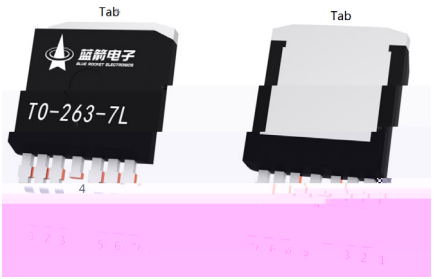
$R_{DS(on)}$@6V≤1.9mΩ(Type. 1.5mΩ)

HF Product.

BMS

BMS, High power inverter system, Drones, Light electric vehicles.




PIN1 G PIN 2 3 5 6 7 S PIN 4 Tab D

See Marking Instructions.

| Parameter | | Symbol | Rating | Unit |
|---|---|---|---|---|
| Drain-Source Voltage | | $V_{DS}$ | 100 | V |
| Drain Current DC *** | | $I_D$(Tc=25 ) | 300 | A |
| | | $I_D$(Tc=100 ) | 150 | A |
| Pulsed Drain Current*,**,*** | | $I_{DM}$ | 1200 | A |
| Gate-Source Voltage | | $V_{GS}$ | ±20 | V |
| Continuous-Source Current | | $I_S$(Tc=25 ) | 300 | A |
| Single Pulsed Avalanche Energy L=1.0mH* | | $E_{AS}$ | 1250 | mJ |
| Total Power Dissipation | | $P_D$(Tc=25 ) | 500 | W |
| Junction and Storage Temperature Range | | $T_J$,$T_{STG}$ | -55 to 175 | |
| Thermal Resistance-Junction to Ambient* | Steady-State | $R_{\theta JA}$ | 30 | /W |
| Thermal Resistance-Junction to Case* | Steady-State | $R_{\theta JC}$ | 0.3 | /W |

Notes:

* Surface Mounted on 1 $in^2$ pad area, t ≤ 10 sec

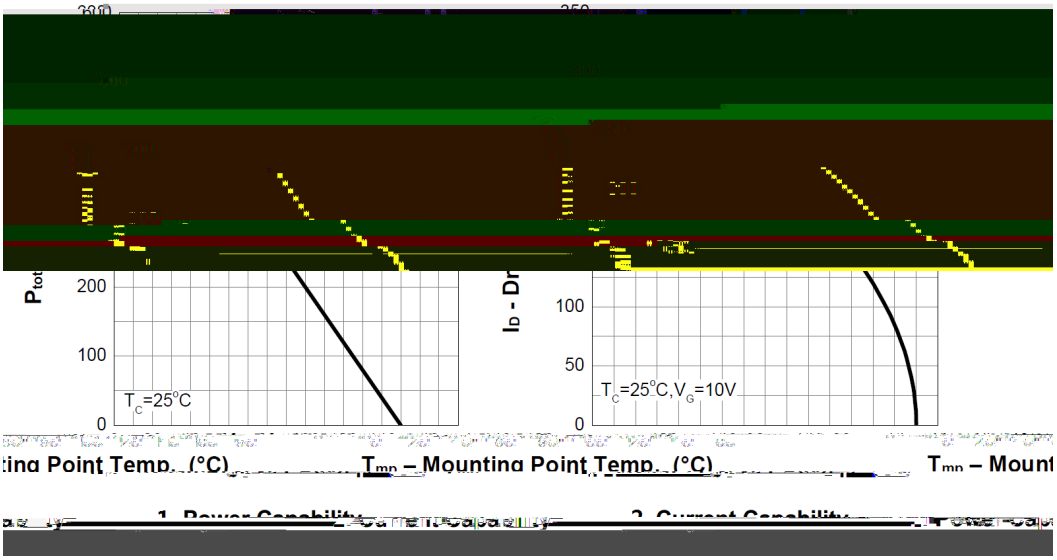
** Pulse width ≤ 300 μs, duty cycle ≤ 2 %

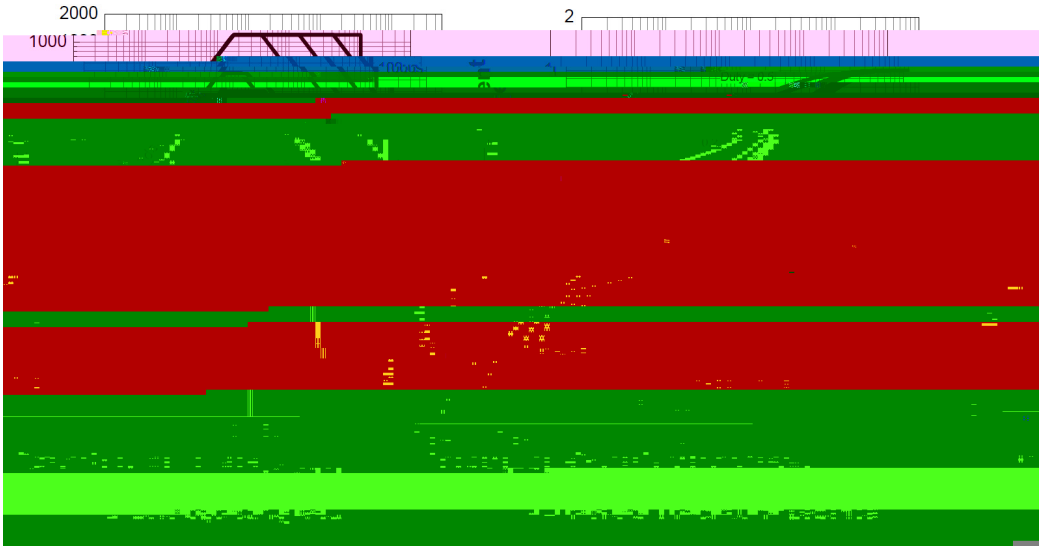
*** Limited by bonding wire

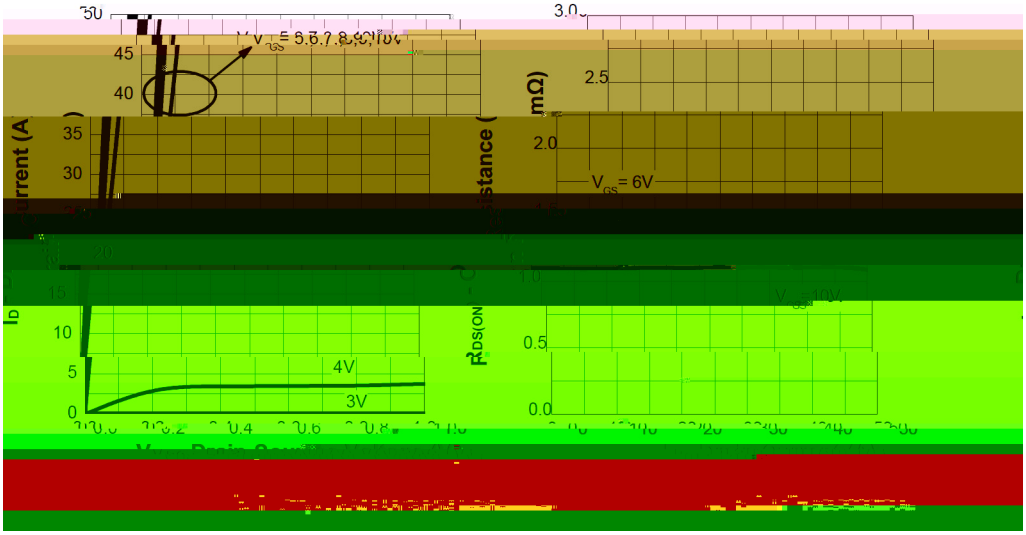
| Parameter | Symbol | Test Conditions | Min | Typ | Max | Unit |
|---|---|---|---|---|---|---|
| Drain-Source Breakdown Voltage | $BV_{DSS}$ | $V_{GS}$=0V $I_D$=250μA | 100 | | | V |
| Zero Gate Voltage Drain Current | $I_{DSS}$ | $V_{DS}$=80V $V_{GS}$=0V | | | 1 | μA |
| Gate-Body Leakage Current Forward | $I_{GSS}$ | $V_{GS}$=±20V $V_{DS}$=0V | | | ±100 | nA |
| Gate Threshold Voltage | $V_{GS(th)}$ | $V_{DS}$=$V_{GS}$ $I_D$=250μA | 2 | | 4 | V |
| Static Drain-Source On-Resistance | $R_{DS(on)}$ | $V_{GS}$=10V $I_D$=50A | | 1.1 | 1.3 | mΩ |
| | | $V_{GS}$=6V $I_D$=25A | | 1.5 | 1.9 | mΩ |
| Forward On Voltage | $V_{SD}$ | $V_{GS}$=0V $I_S$=50A | | | 1.3 | V |
| Reverse Recovery Time | $t_{rr}$ | $I_{DS}$ = 50 A, $V_{GS}$ = 0 V dI$_{SD}$/dt = 100 A/μs | | 137 | | nS |
| Reverse Recovery Charge | $Q_{rr}$ | | | 347 | | nC |
| Input Capacitance | $C_{iss}$ | $V_{DS}$=50V $V_{GS}$=0V f=1MHz | | | | pF |

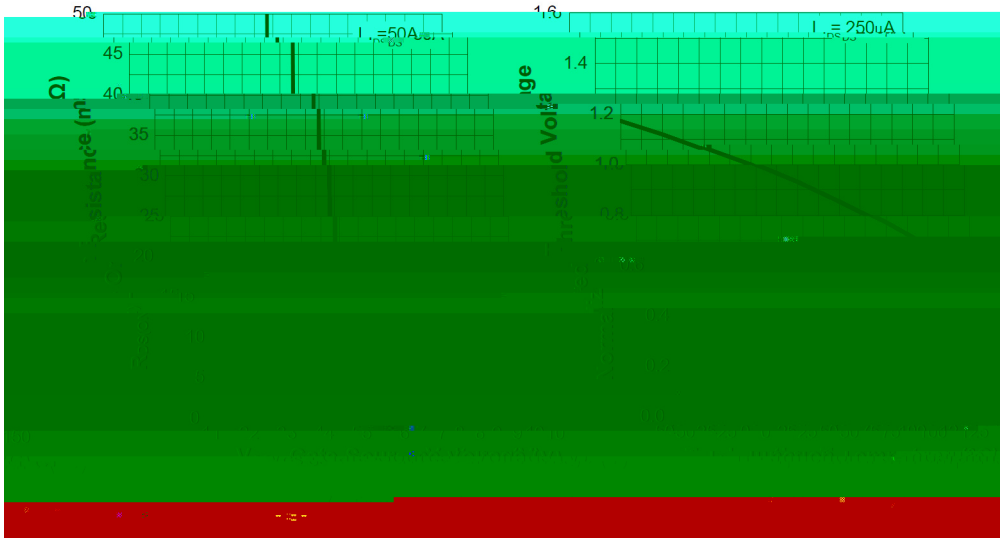
ReverseTasfter acitance

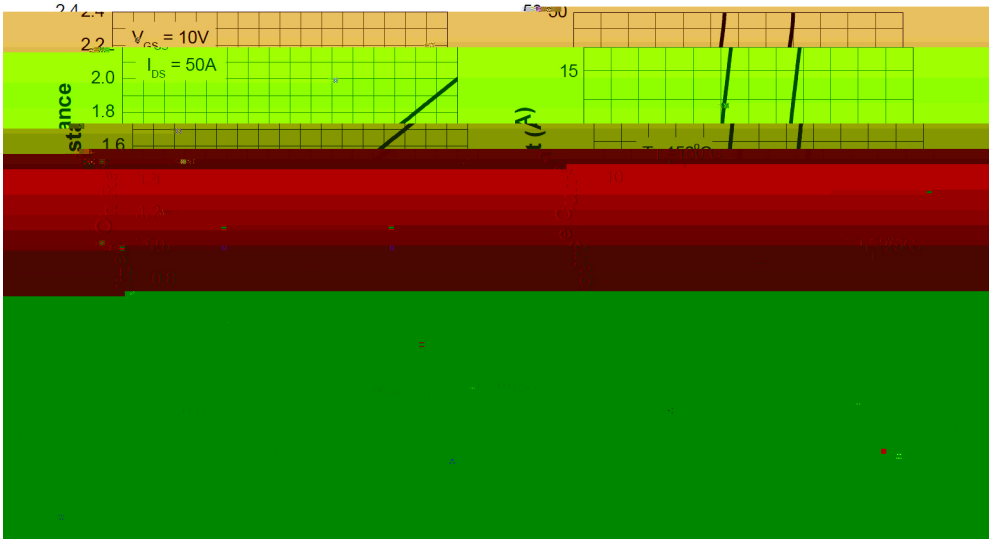
| Parameter | Symbol | Test Conditions | Min | Typ | Max | Unit |
|---|---|---|---|---|---|---|
| Total Gate Charge | $Q_g$(10V) | $V_{GS}$=10V $V_{DS}$=50V $I_D$=50A | | 244 | | nC |
| Gate Source Charge | $Q_{gs}$ | | | 46 | | |
| Gate Drain Charge | $Q_{gd}$ | | | 67 | | |
| Turn-On Delay Time | $t_{d(on)}$ | $V_{GS}$=10V $V_{DS}$=50V $R_L$=2.5Ω $R_G$=4.5Ω $I_{DS}$=50A | | 29 | | nS |
| TuRsTu | | | | | | |

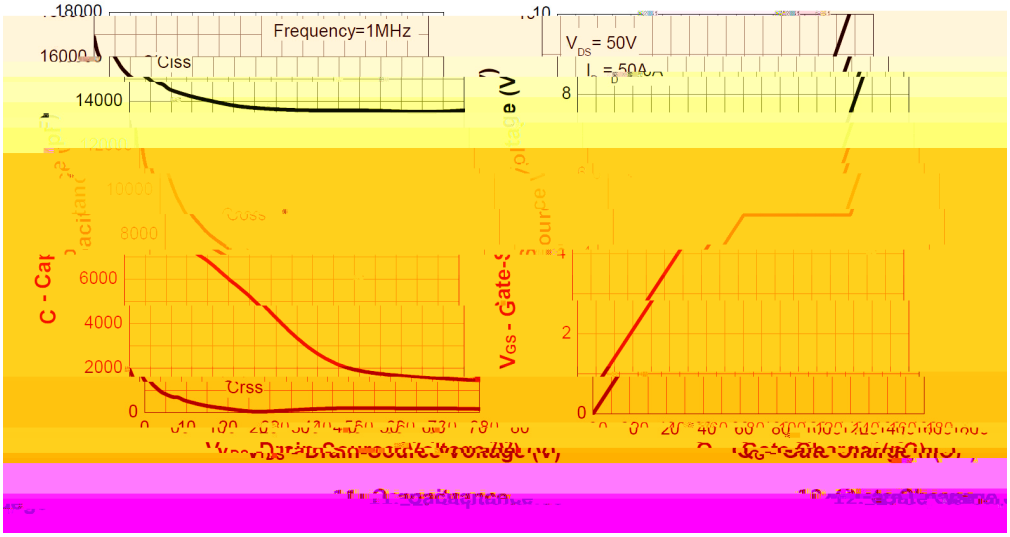

200
100
0
$T_C$=25°C
100
50
0
$T_C$=25°C,$V_G$=10V
Tmp – Mounting Point Temp. (°C)
Tmp – Mount


2000
1000
2


45
40
35
30
2.5
2.0
$V_{GS}$ = 6V
10
5
0
4V
3V
0.5
0.0


I_D=250uA
45
40
35
1.4
1.2


V_GS = 10V
I_DS = 50A
2.2
2.0
1.8
1.6
15


Frequency=1MHz
Ciss
Coss
Crss
16000
14000
8000
6000
4000
2000
V_DS = 50V
I_D = 50A
8
2
0


| Symbol | Dimensions In Millimeters | | Symbol | Dimensions In Millimeters | |
|---|---|---|---|---|---|
| D1 | 6.86 | 7.42 | A | 4.30 | 4.70 |
| E | 9.68 | 10.08 | A1 | | 0.25 |
| 1 | 7.70 | 8.30 | A2 | 2.20 | 2.60 |
| 0.85 | e | 1.27 BSC | | b | 0.65 |
| 0.80 | e1 | 7.62 BSC | | b1 | 0.65 |
| 1.00 | L | 1.78 | 2.79 | b2 | 0.80 |
| 0.45 | 0.60 | L2 | - | 1.78 | c |
| 0.45 | 0.55 | L3 | 0.25BSD | | c1 |
| 1.25 | 1.40 | H | 14.61 | 15.88 | c2 |
| 9.00 | 9.40 | | | | D |

## Temperature Profile for IR Reflow Soldering(Pb-Free)

| |
|---|
| |
| |
| |
| |
| |
| |

| | | | | | |
|---|---|---|---|---|---|
| | | | | | Note: |
| 1 | 150 | 180 | | 60 90sec; | 1.Preheating:150~180 , Time:60~90sec. |
| 2 | 245±5 | | | 5±0.5sec; | 2.Peak Temp.:245±5 , Duration:5±0.5sec. |
| 3 | | | 2 10 | /sec. | 3. Cooling Speed: 2~10 /sec. |

605±5