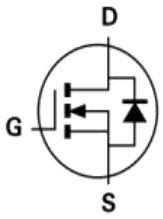
LG50N10AP/T

N- Channel Advanced Power MOSFET

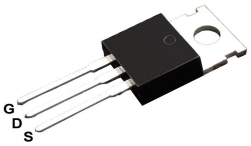
MAIN CHARACTERISTICS

I_D	50A
V_{DSS}	100V
R_{DSON}-typ （@V_{GS}=10V）	14.5mΩ

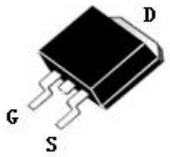


FEATURES

- Fast Switching
- Low ON Resistance
- Low Gate Charge
- 100% Single Pulse avalanche energy Test



TO-220C



TO-263C

APPLICATIONS

- Power switch circuit of adaptor and charger.

MECHANICAL DATA

- Case: Molded plastic
- Mounting Position: Any
- Molded Plastic: UL Flammability Classification Rating 94V-0
- Lead free in compliance with EU RoHS 2011/65/EU directive
- Solder bath temperature 275℃ maximum,10s per JESD 22-B106

Product specification classification

Part Number	Package	Mode Name	Pack
LG50N10AP	TO-220C	LG50N10AP	Tape
LG50N10AT	TO-263C	LG50N10AT	Tape

Maximum Ratings at Tc=25°C unless otherwise specified

Characteristics	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	100	V
Gate-Source Voltage	V_{GS}	±20	V
Continue Drain Current	I_D	50	A
Pulsed Drain Current (Note1)	I_{DM}	180	A
Power Dissipation	P_D	105	W
Single Pulse Avalanche Energy	E_{AS}	183	mJ
Operating Temperature Range	T_J	150	°C
Storage Temperature Range	T_{STG}	-55 to +150	°C
Thermal Resistance, Junction to Case(Note 2)	$R_{\theta JC}$	1.17	°C/W
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	62	°C/W

Electrical Characteristics at Tc=25°C unless otherwise specified

Characteristics	Test Condition	Symbol	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	V_{GS} = 0 V,I_D = 250 μA	BV_{DSS}	100	-	-	V
Drain-Source Leakage Current	V_{DS} = 100V, V_{GS} = 0 V	I_{DSS}	-	-	1	μA
	V_{DS}=100V,Tc=125°C		-	-	100	μA
Gate Leakage Current	V_{GS} = ± 20 V, V_{DS} = 0 V	I_{GSS}	-	-	±100	nA
Gate-Source Threshold Voltage	V_{DS} = V_{GS} , I_D = 250 μA	$V_{GS(th)}$	1.2	-	2.5	V
Drain-Source On-State Resistance (Note 3)	V_{GS} = 10 V, I_D =20A	$R_{DS(on)}$	-	14.5	18.5	mΩ
	V_{GS} = 4.5 V, I_D =15A		-	18.5	24	mΩ
Input Capacitance	V_{GS} = 0 V, V_{DS} = 50 V, f =100KHz	C_{iss}	-	1980	-	pF
Output Capacitance		C_{oss}	-	320	-	pF
Reverse Transfer Capacitance		C_{rss}	-	7	-	pF
Turn-on Delay Time	VDS=50V, ID=25A VGS=10V,RG=2Ω (Note3,4)	$t_{d(ON)}$	-	22	-	ns
Rise Time		t_r	-	5	-	ns
Turn-Off Delay Time		$t_{d(OFF)}$	-	44.5	-	ns
Fall Time		t_f	-	8.6	-	ns
Total Gate Charge	VDS=50V,ID=25A, VGS=10V (Note3,4)	Q_G	-	28.5	-	nC
Gate to Source Charge		Q_{GS}	-	6	-	nC
Gate to Drain Charge		Q_{GD}	-	7	-	nC

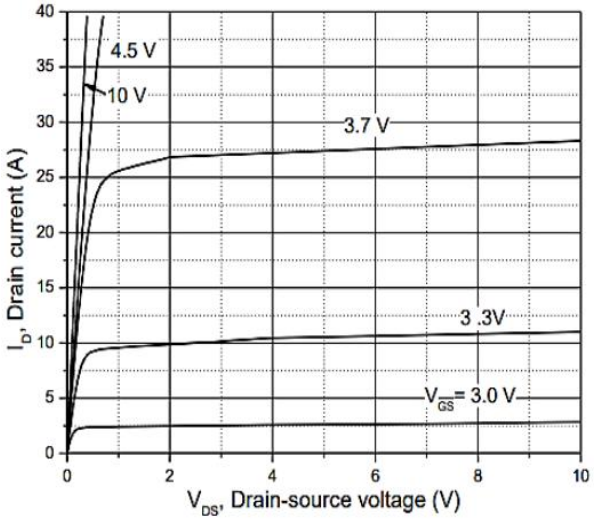
Source-Drain Diode Characteristics at Ta=25°C unless otherwise specified

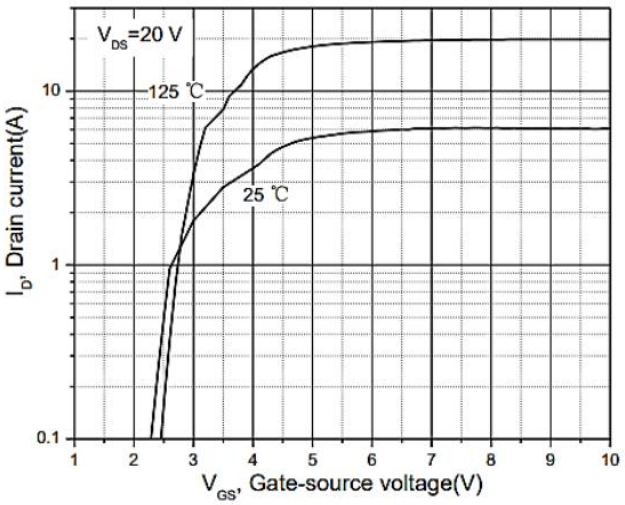
Characteristics	Test Condition	Symbol	Min.	Typ.	Max.	Unit
Maximun Body-Diode Continuous Current (Note 2)		I_S	-	-	50	A
Maximun Body-Diode Pulsed Current		I_{SM}	-	-	180	A
Reverse Recovery Time	I_S = I_F, ISD=25A,V_{GS} = 0 V, dI / dt = 100 A/μs (Note3)	trr	-	101.5	-	ns
Reverse Recovery Charge		Qrr	-	375	-	μC

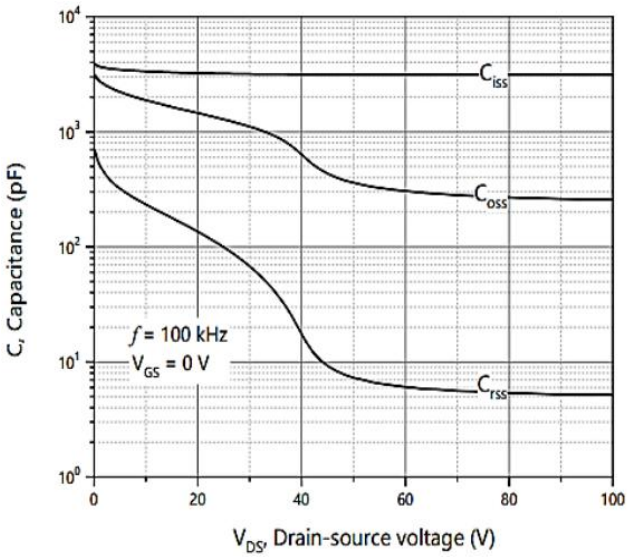
Note:

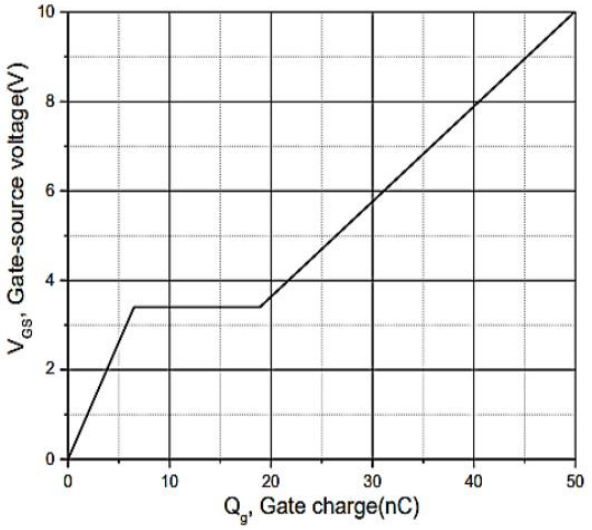
1. Repetitive Rating: Pulse width limited by maximum junction temperature.
2. Surface Mounted on FR4 Board, t ≤ 10 sec.
3. Pulse Test: Pulse Width ≤ 300μs, Duty Cycle ≤ 2%.
4. Guaranteed by design, not subject to production
5. EAS condition:Tj=25 ,VDD= 30V,VG=10V,L=0.1mH,Rg=25Ω

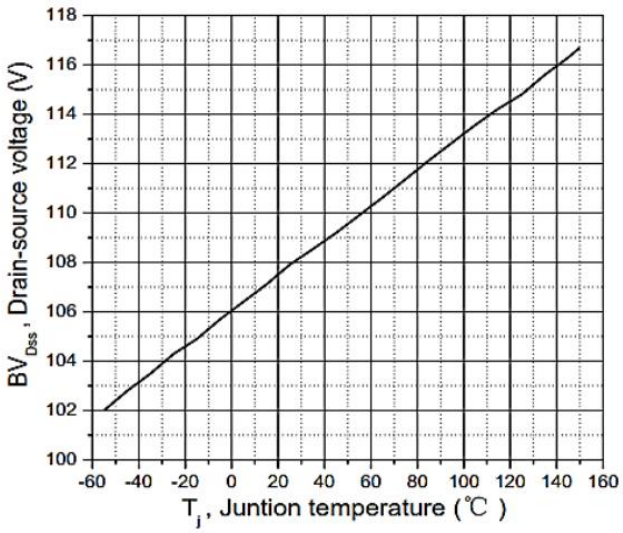
RATINGS AND CHARACTERISTIC CURVES

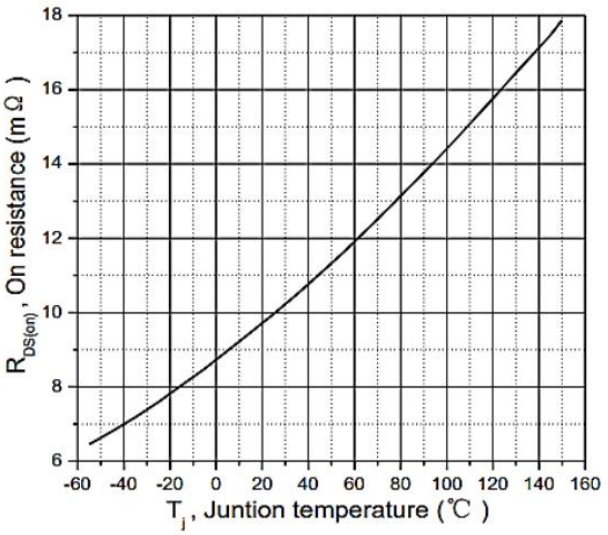




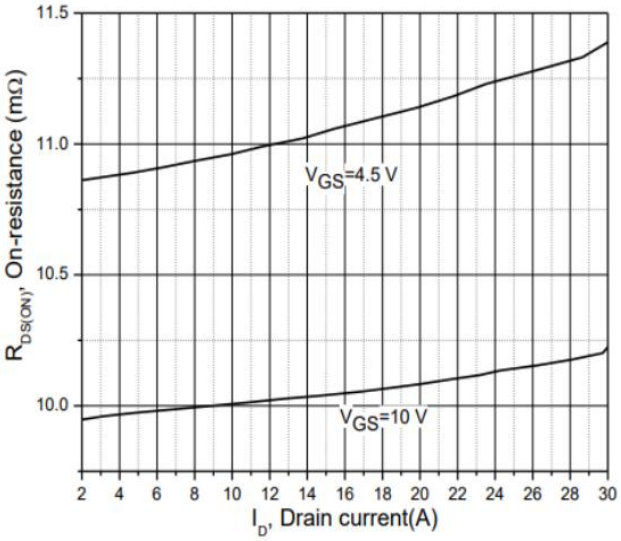


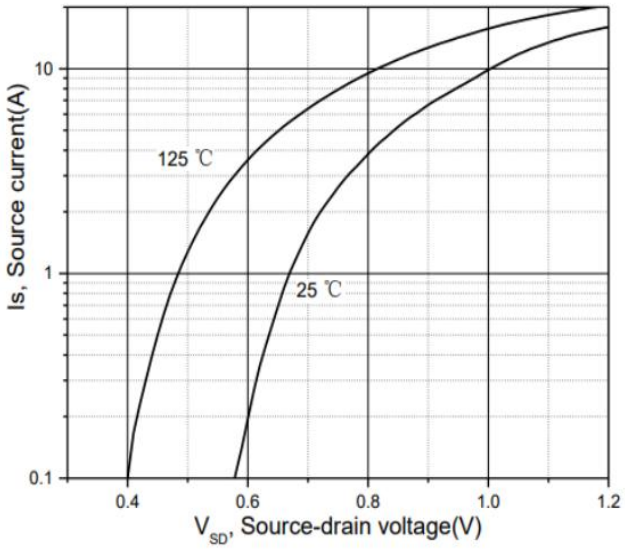


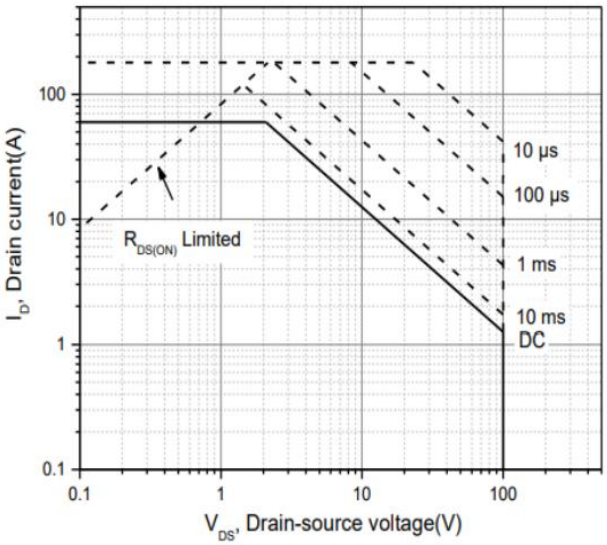




RATINGS AND CHARACTERISTIC CURVES

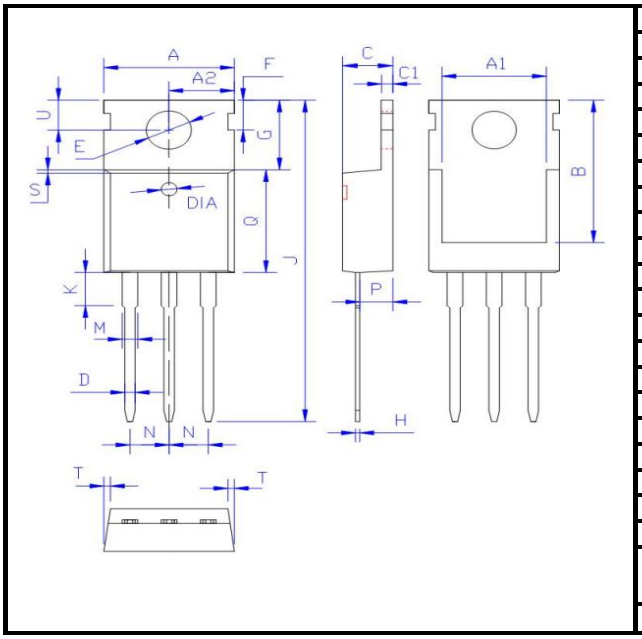






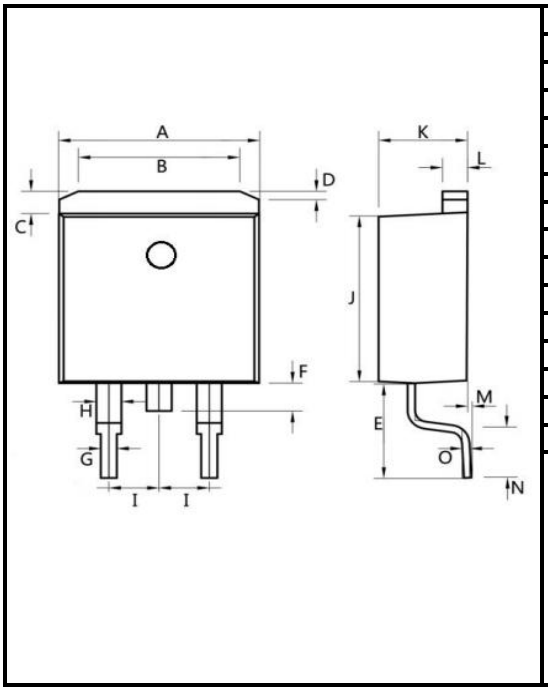
Package Outline Dimensions millimeters

TO-220C



Dim.	Min.	Max.
A	9.8	10.2
A1	7.8	8.2
A2	4.8	5.2
B	13	13.4
C	4.35	4.65
C1	1.15	1.45
D	0.65	0.95
E	3.45	3.75
F	2.85	3.15
G	6.4	6.8
H	0.35	0.65
J	28.68	29.08
K	2.8	3.2
M	1.15	1.45
N	Typ2.54	
P	2.2	2.6
Q	9	9.4
S	0.15	0.35
T	0.15	0.35
U	2.65	2.95
DIA	直径1.5±0.1 深MAX0.5	
All Dimensions in millimeter		

TO-263C



Dim.	Min.	Max.
A	9.8	10.2
B	6.1	6.7
C	1.1	1.4
D	0.5	1.0
E	4.6	5.0
F	1.4	1.6
G	0.7	0.9
H	1.17	1.37
I	Typ2.54	
J	9	9.2
K	4.3	4.7
L	1.25	1.35
M	0.02	0.23
N	2.2	2.8
O	0.45	0.55
All Dimensions in millimeter		