

MAIN CHARACTERISTICS

I_D	11A
V_{DS}	800V
$R_{DS(on)-Typ@}$ $V_{GS}=10V$	380mΩ

FEATURES

- Super Junction technology
- 100% UIS tested
- 100% Rg/Ciss/Coss/Crss tested(low Crss)
- Low RDS(ON)&FOM

APPLICATIONS

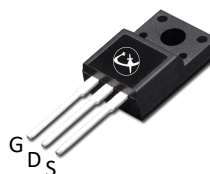
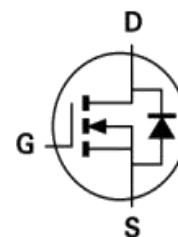
- PWM Application
- Load Switch
- EV Charger
- Power Management

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°C maximum, 10s per JESD 22-B106

Product specification classification

Part Number	Package	Mode Name	Pack
LC80R380F	TO-220F	LC80R380F	Tube



TO-220F

Maximum Ratings at Tc=25°C unless otherwise specified

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	800	V
Gate-Source Voltage	V_{GS}	± 30	V
Continue Drain Current Tc=25°C	I_D	11	A
Continue Drain Current Tc=100°C		6.9	A
Pulsed Drain Current (Note1)	I_{DM}	33	A
Power Dissipation	P_D	33	W
Single Pulse Avalanche Energy (Note1)	E_{AS}	360	mJ
Repetitive Avalanche Energy 1)	E_{AR}	1.6	mJ
Peak diode recovery dv/dt	dv/dt	50	V/ns
Operating Temperature Range	T_J	-55 to +150	°C
Storage Temperature Range	T_{STG}	-55 to +150	°C
Maximum lead temperature for soldering purposes, 1/8" from case for 5	T_L	300	°C
Thermal Resistance, Junction to Case	$R_{\theta JC}$	3.7	°C/W
Thermal Resistance, Junction to	$R_{\theta JA}$	62.5	°C/W

Note1:Pulse test: 300 μ s pulse width, 2 % duty cycle

Electrical Characteristics at Tc=25°C unless otherwise specified

Parameter	Test Condition	Symbol	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	$V_{GS} = 0 \text{ V}, I_D = 250 \mu\text{A}$	BV_{DSS}	800	-	-	V
Drain-Source Leakage Current	$V_{DS} = 800 \text{ V}, V_{GS} = 0 \text{ V}$	I_{DSS}	-	-	100	nA
	$V_{DS} = 800 \text{ V}, T_C = 125^\circ\text{C}$		-	-	1	μA
Gate Leakage Current	$V_{GS} = \pm 30 \text{ V}, V_{DS} = 0 \text{ V}$	I_{GSS}	-	-	± 100	nA
Gate-Source Threshold Voltage	$V_{DS} = V_{GS}, I_D = 250 \mu\text{A}$	$V_{GS(th)}$	2.5	3.7	4.5	V
Drain-Source On-State Resistance	$V_{GS}=10\text{V}, I_D=5.5\text{A}$	$R_{DS(on)}$	-	380	400	m Ω
Input Capacitance	$V_{DS}=25\text{V}, V_{GS}=0\text{V}, f=1\text{MHz}$	C_{iss}	-	1172	-	pF
Output Capacitance		C_{oss}	-	509	-	pF
Reverse Transfer Capacitance		C_{rss}	-	23	-	pF
Gate Resistance	$V_{DS}=15\text{mV}, V_{GS}=0\text{V}$	R_g	-	3.9	-	Ω
Turn-on Delay Time(Note2)	$V_{DD} = 400\text{V}, I_D = 18\text{A}, V_{GS} = 10\text{V}, R_G = 20\Omega$	$t_{d(ON)}$	-	12	-	ns
Rise Time(Note2)		t_r	-	15	-	ns
Turn-Off Delay Time(Note2)		$t_{d(OFF)}$	-	22	-	ns
Fall Time(Note2)		t_f	-	4	-	ns
Total Gate Charge(Note2)	$V_{DS} = 400\text{V}, V_{GS} = 10\text{V}, I_D = 8\text{A}$	Q_G	-	26.5	-	nC
Gate to Source Charge(Note2)		Q_{GS}	-	4.72	-	nC
Gate to Drain Charge(Note2)		Q_{GD}	-	8.32	-	nC

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

Parameter	Test Condition	Symbol	Min.	Typ.	Max.	Unit
Maximun Body-Diode Continuous	VGS = VDS = 0 V, Force Current	I_S	-	11	-	A
Maximun Body-Diode Pulsed		I_{SM}	-	33	-	A
Drain-Source Diode Forward Voltage	VGS=0V , IS=5.5A , TJ=25°C	V_{SD}	-	0.8	1.2	V
Body Diode Reverse Recovery Time	IF=15A,dI/dt=100A/μs,TJ=25°C	Trr	-	403	-	ns
Body Diode Reverse Recovery Charge		Qrr	-	5.4	-	nC

Note2:Pulse test: 300 μs pulse width, 2 % duty cycle

RATINGS AND CHARACTERISTIC CURVES

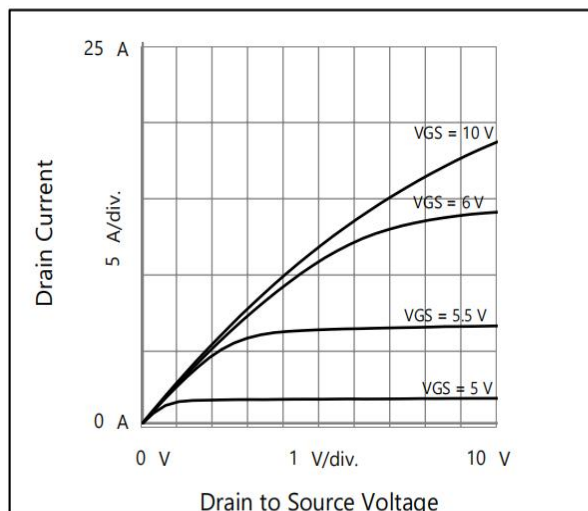


Fig1. Output Characteristics

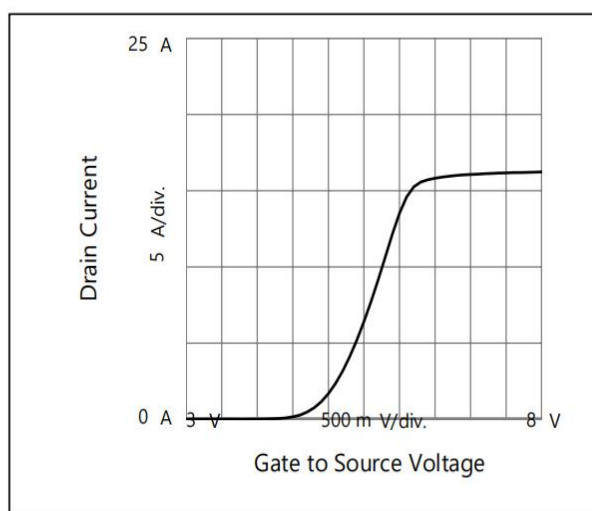


Fig2. Transfer Characteristics

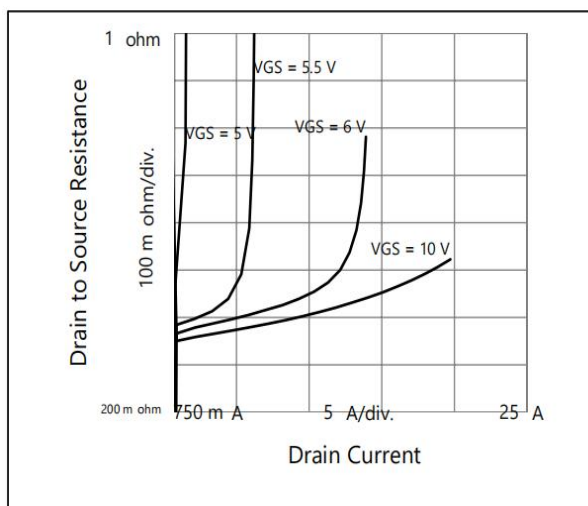


Fig3. $R_{DS(on)}$ vs I_{DS}

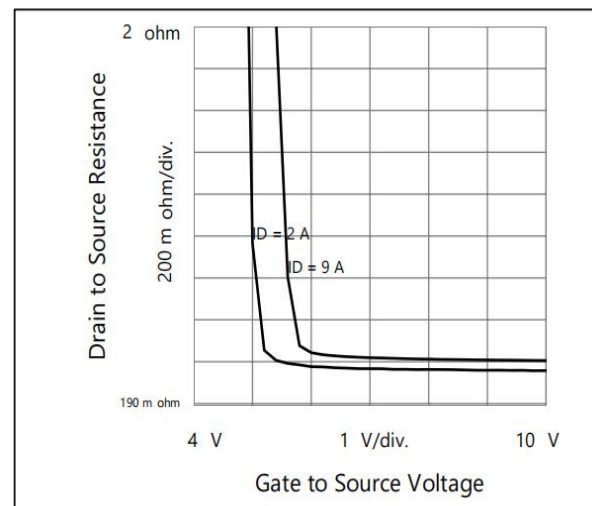


Fig4. $R_{DS(on)}$ vs V_{GS}

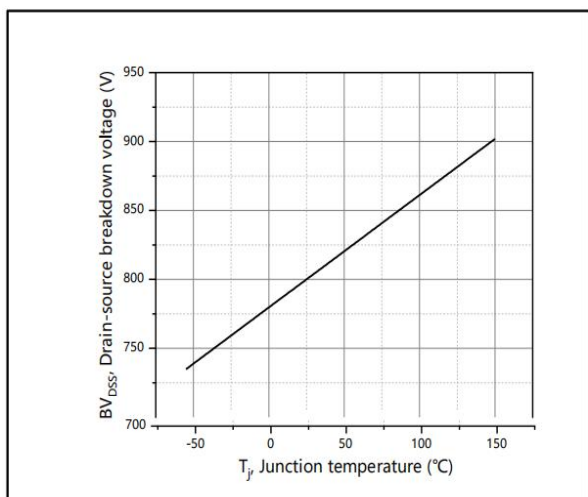


Fig5. BV_{DSS} vs T_J

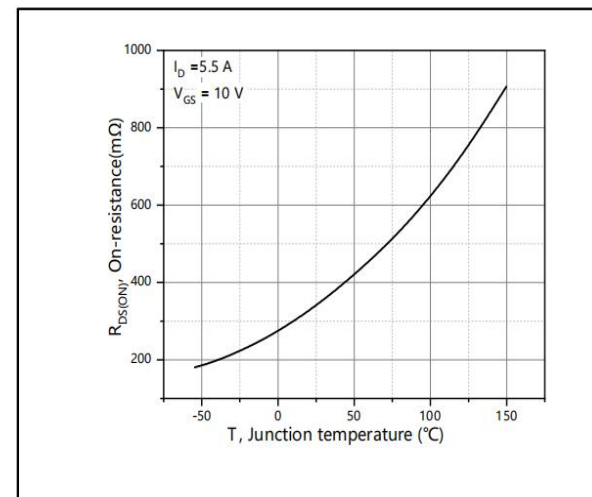


Fig6. $R_{DS(on)}$ vs T_J

RATINGS AND CHARACTERISTIC CURVES

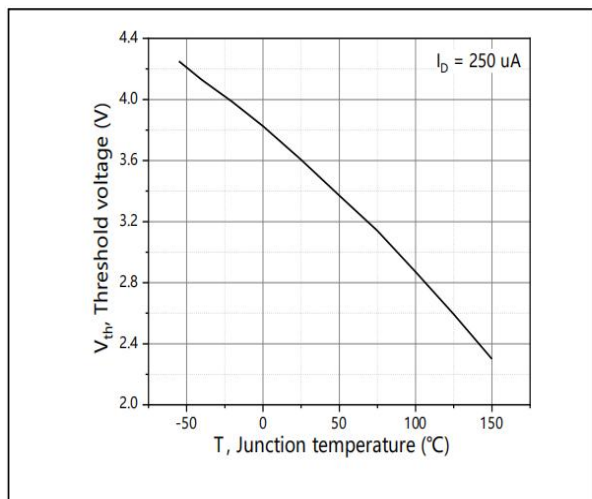


Fig7.VTH vs TJ

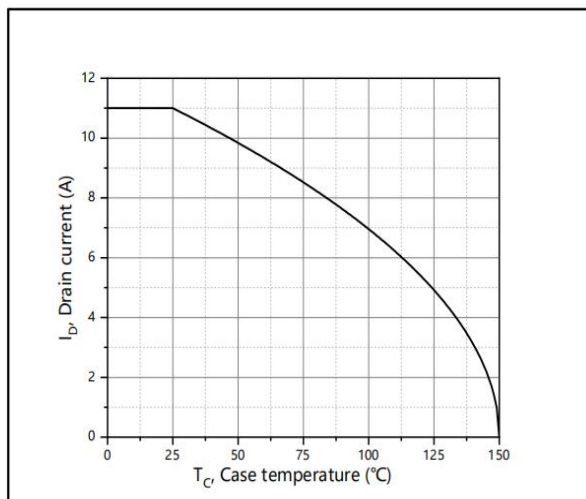


Fig8.IDS vs TC

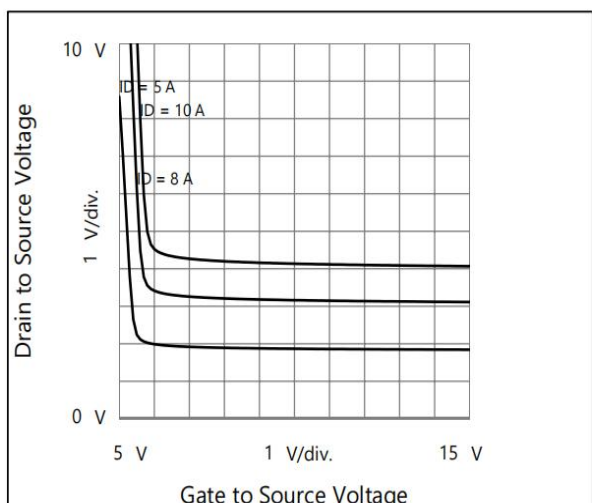


Fig9.RDS(on)VS

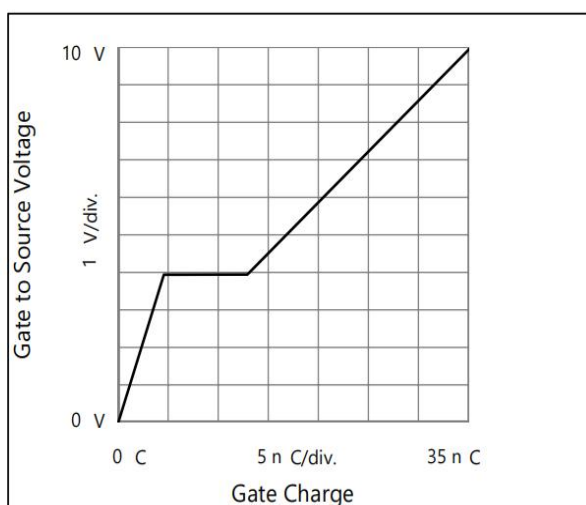


Fig10.Gate Charge Characteristics

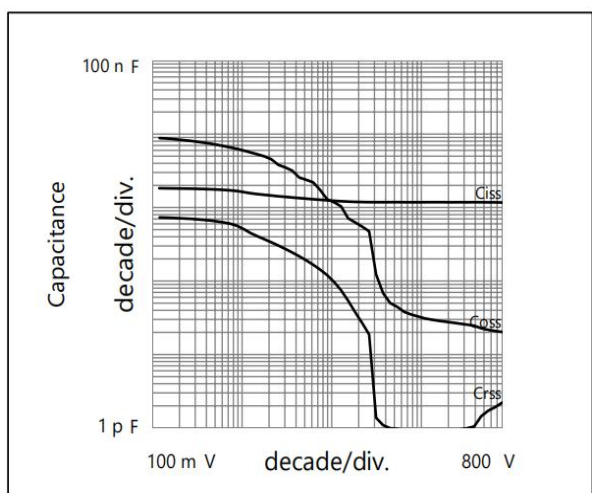


Fig11.Capacitance Characteristics

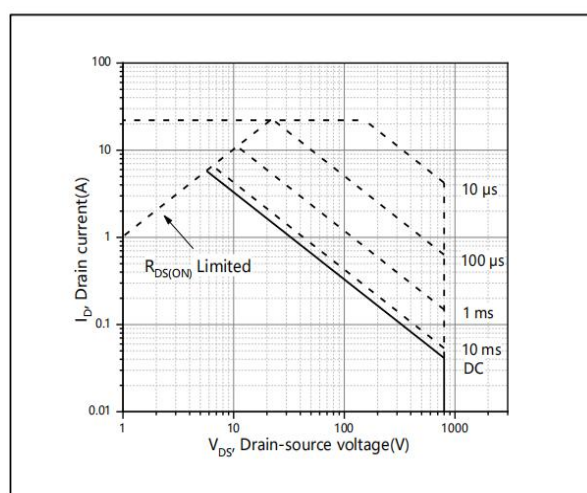
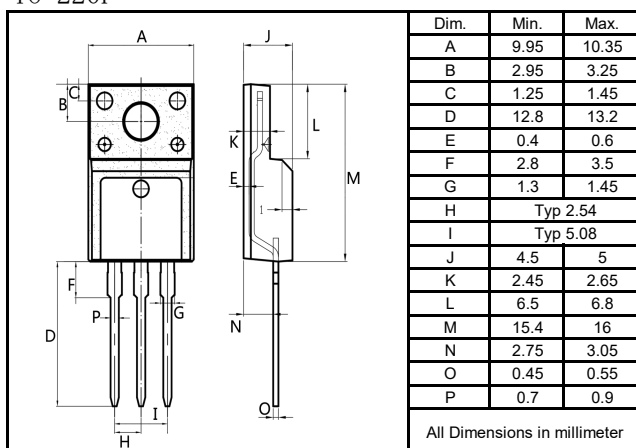


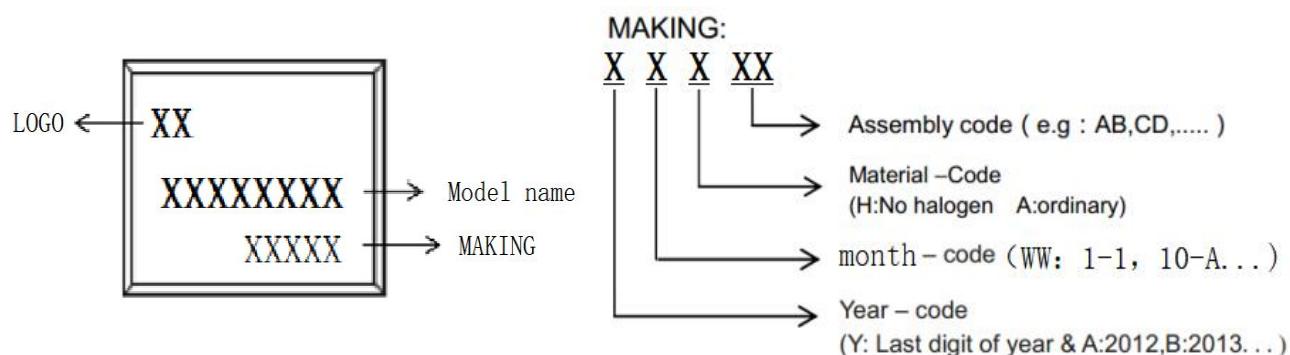
Fig12.Safe Operating Area

Package Outline Dimensions millimeters

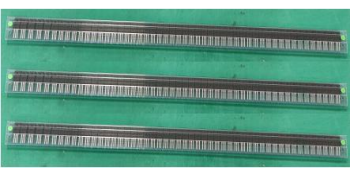
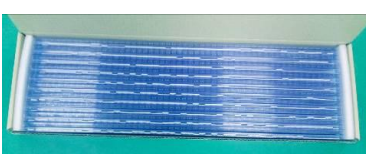
TO-220F



Marking on the body



packing instruction

PKG	Minimal Package	Box	Carton
TO-220F			
	50pcs/pdpe	1000pcs/box	5000pcs/box



LC80R380F

N-channel Super Junction MOSFET

Notice

All product, product specifications and data are subject to change without notice to improve. The right to explain is owned by LINGXUN electronics company.

Confirm that operation temperature is within the specified range described in the product specification. Avoid applying power exceeding normal rated

power; exceeding the power rating under steady-state loading condition may negatively affect product performance and reliability.

LINGXUN electronics shall not be in any way responsible or liable for failure induced under deviant condition from what is defined in this document.

<http://www.lxmicro.com>

Revision History

Rev	Changes	Date
1.0	First version	2025-9-12