

MAIN CHARACTERISTICS

I_D	20A
V_{DSS}	650V
RDSON-typ VGS=10V	180m Ω

FEATURES

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

APPLICATIONS

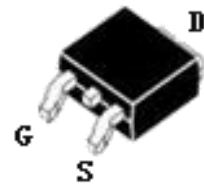
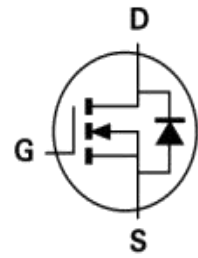
- PWM Application
- Load Switch
- EV Charger
- Power Management
- Solar/Renewable/UPS-Micro Inverter System

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
LCF65R190D	TO-252	LCF65R190D	Tube



TO-252

Maximum Ratings at Tc=25°C unless otherwise specified

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	650	V
Gate-Source Voltage	V_{GS}	±30	V
Continue Drain Current Tc=25°C	I_D	20	A
Continue Drain Current Tc=100°C		12.5	A
Pulsed Drain Current (Note1)	I_{DM}	80	A
Power Dissipation	P_D	125	W
Single Pulse Avalanche Energy (Note1)	E_{AS}	335	mJ
Operating Temperature Range	T_J	-50 to +150	°C
Storage Temperature Range	T_{STG}	-50 to +150	°C
Thermal Resistance, Junction to Case	$R_{\theta JC}$	0.9	°C/W
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	62.5	°C/W

Note1:Pulse test: 300 μs 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}	650	-	-	V
Drain-Source Leakage Current	$V_{DS} = 650 \text{ V}, V_{GS} = 0 \text{ V}$	I_{DSS}	-	-	1	μA
	$V_{DS} = 650 \text{ V}, T_c = 125^\circ\text{C}$		-	-	10	μA
Gate Leakage Current	$V_{GS} = \pm 30 \text{ V}, V_{DS} = 0 \text{ V}$	I_{GSS}	-	-	±100	nA
Gate-Source Threshold Voltage	$V_{DS} = V_{GS}, I_D = 250 \mu\text{A}$	$V_{GS(th)}$	3	-	4.5	V
Drain-Source On-State Resistance	$V_{GS} = 10 \text{ V}, I_D = 10 \text{ A}$	$R_{DS(on)}$	-	180	210	mΩ
Input Capacitance	$V_{DS} = 50 \text{ V}, V_{GS} = 0 \text{ V}, f = 1.0 \text{ MHz}$	C_{iss}	-	1172	-	pF
Output Capacitance		C_{oss}	-	38	-	pF
Reverse Transfer Capacitance		C_{rss}	-	1	-	pF
Turn-on Delay Time(Note2)	$V_{DD} = 400 \text{ V}, I_D = 10 \text{ A}, V_{GS} = 10 \text{ V}, R_G = 20 \Omega$	$t_{d(ON)}$	-	46	-	ns
Rise Time(Note2)		t_r	-	52	-	ns
Turn-Off Delay Time(Note2)		$t_{d(OFF)}$	-	87	-	ns
Fall Time(Note2)		t_f	-	61	-	ns
Total Gate Charge(Note2)	$V_{DS} = 400 \text{ V}, V_{GS} = 10 \text{ V}, I_D = 10 \text{ A}$	Q_G	-	34	-	nC
Gate to Source Charge(Note2)		Q_{GS}	-	5.8	-	nC
Gate to Drain Charge(Note2)		Q_{GD}	-	13	-	nC

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

Parameter	Test Condition	Symbol	Min.	Typ.	Max.	Unit
Maximum Continuous Drain -Source Diode Forward Current		I_S	-	-	20	A
Maximum Pulsed Drain-Source Diode Forward Current		I_{SM}	-	-	80	A
Drain-Source Diode Forward Voltage	$V_{GS} = 0 \text{ V}, I_S = 10 \text{ A}, T_J = 25^\circ\text{C}$	V_{SD}	-	0.8	1.2	V
Reverse recovery time	$V_{DD} = 400 \text{ V}, T_J = 25^\circ\text{C}, I_F = 15 \text{ A}, di/dt = 100 \text{ A}/\mu\text{s}$	t_{rr}	-	180	-	ns
Reverse recovery charge		Q_{rr}		0.68		uC

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

RATINGS AND CHARACTERISTIC CURVES

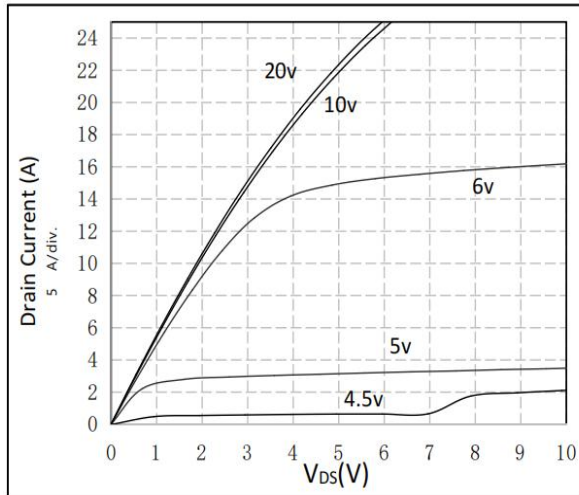


Fig1. Output Characteristics

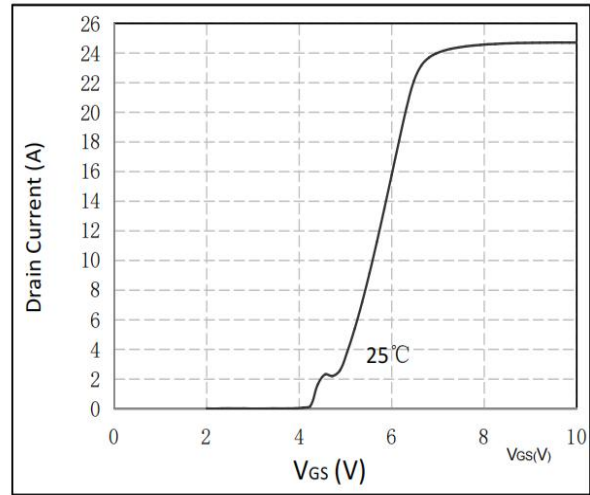


Fig2. Transfer Characteristics

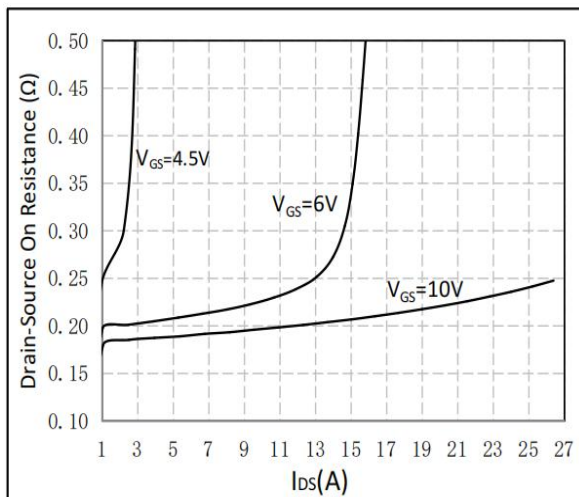


Fig3. $R_{DS(on)}$ vs I_{DS}

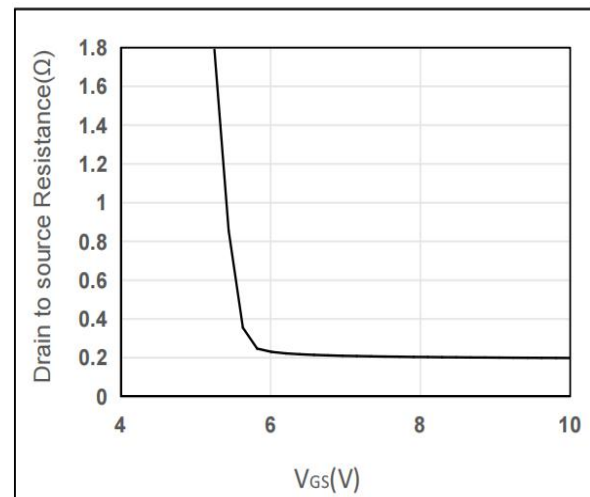


Fig4. $R_{DS(on)}$ vs V_{GS}

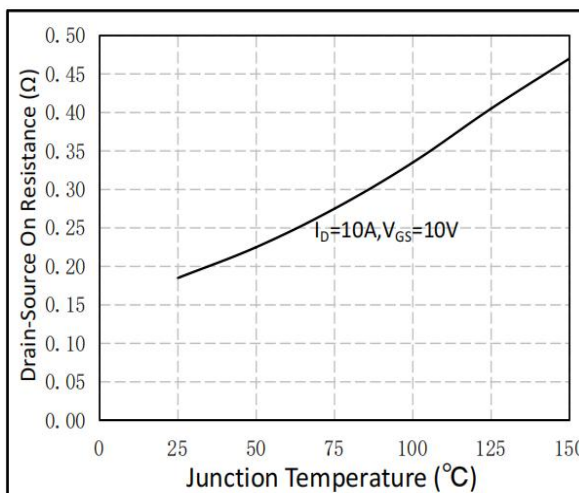


Fig5. $R_{DS(on)}$ vs T_J

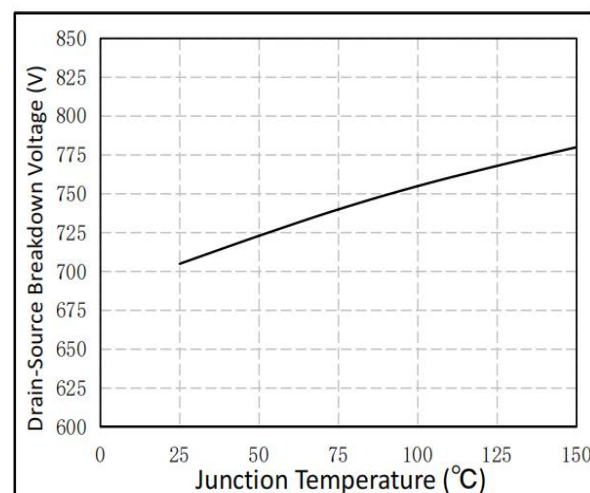


Fig6. BV_{DSS} vs T_J

Fig5.RDS(on) vs TJ

Fig6.BVDSS vs TJ

RATINGS AND CHARACTERISTIC CURVES

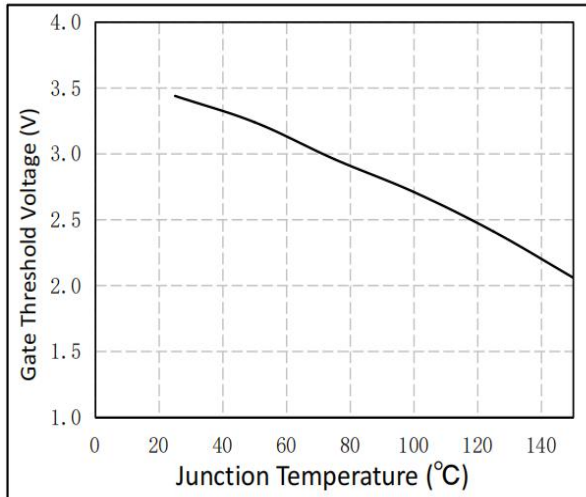


Fig7.VTH vs TJ

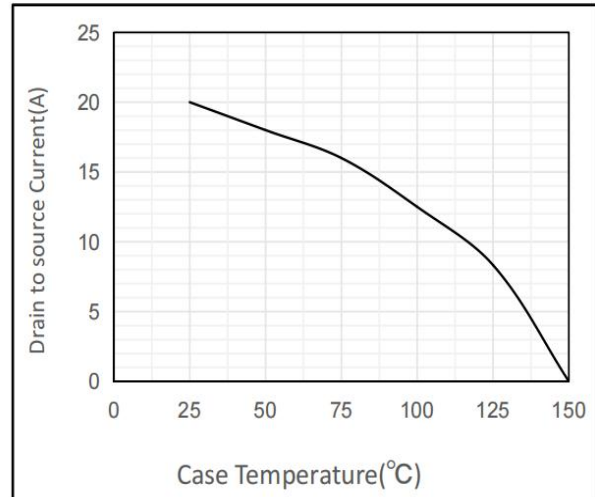


Fig8.IDS vs TC

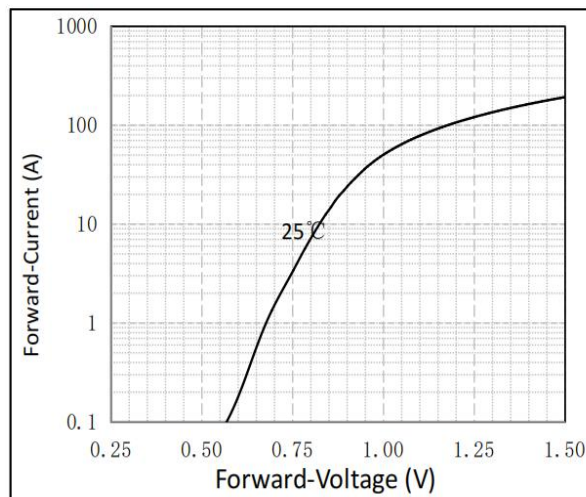


Fig9.IS vs VSD

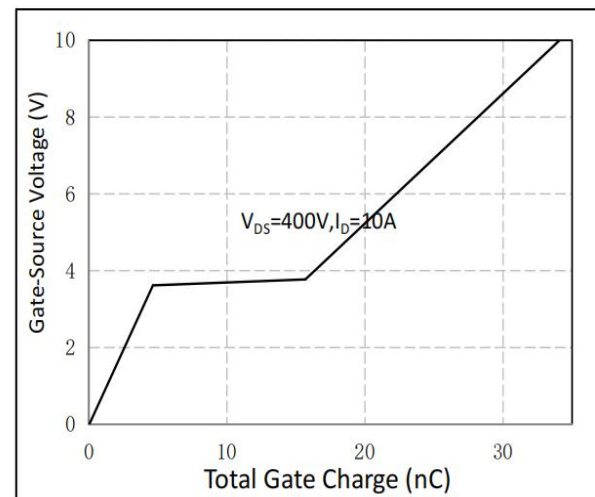


Fig10.Gate Charge Characteristics

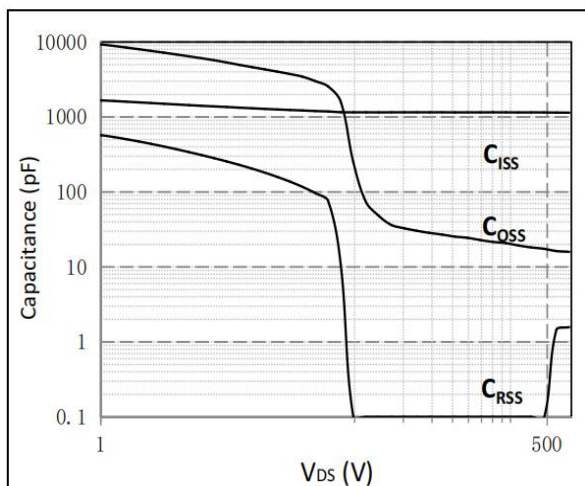


Fig11.Capacitance Characteristics

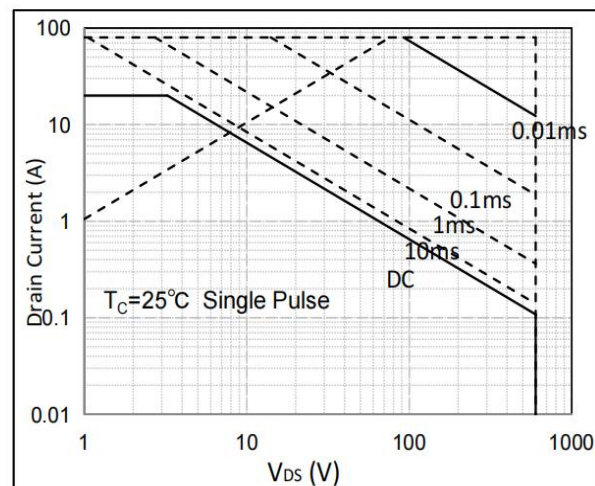
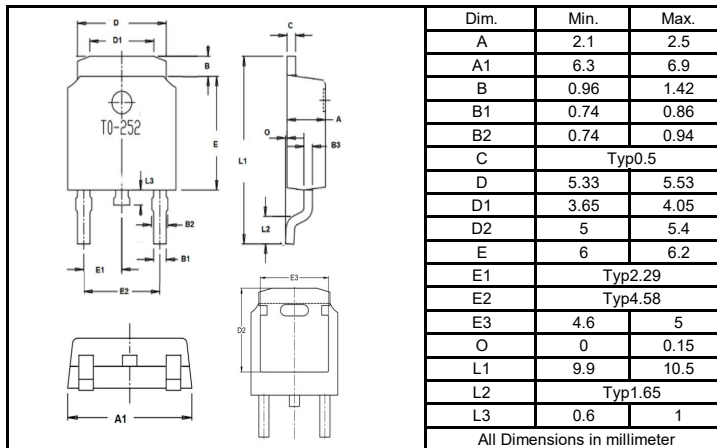


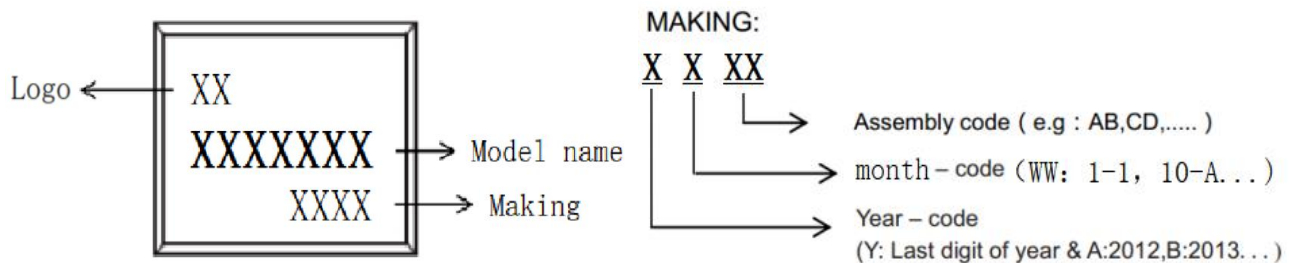
Fig12.Safe Operating Area

Package Outline Dimensions millimeters

T0-252



Marking on the body



packing instruction

PKG	最小包装	内盒	外箱
TO-252			
	2500pcs/盘	5000pcs/盒	25000pcs/箱

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



LCF65R190D

N-channel Super Junction MOSFET

LINGXUN electronics shall not be in any way responsible or liable for failure induced under deviant condition from what is defined in this document; exceeding the power rating under steady-state loading condition may negatively affect product performance and reliability.