

### MAIN CHARACTERISTICS

$I_D$	18A
$V_{DS}$	800V
$R_{DS(on)-typ}$ (@VGS=18V Tc=25°C)	128mΩ

### Features

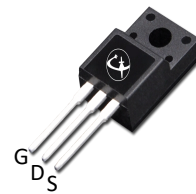
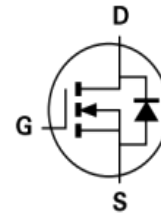
- Wide Bandgap SiC MOSFET Technology
- Low On-Resistance with High Blocking Voltage
- Low Capacitances with High-Speed Switching
- Low Reverse Recovery (Qrr)
- Robust against Parasitic Turn on Even 0V Turn off Gate Voltage

### Benefits

- Increased Power Density
- Reduced Switching Losses
- Reduction of Heat Sink Requirements
- Increased System Switching Frequency
- Reduced EMI

### Application

- Switch Mode Power Supplies
- High Voltage DC/DC Converters
- Battery Chargers
- Motor Drives
- Pulsed Power Applications



TO-220F

### Product specification classification

Part Number	Package	Mode Name	Pack
LSC140M65F	TO-220F	LSC140M65F	Tube

### Maximum Ratings at Tc=25°C unless otherwise specified

Parameter	Symbol	Value	Unit
Drain-Source Voltage	$V_{DS}$	800	V
Gate-Source Voltage	$V_{GS}$	-10/+22	V
Recommended Operation Value	VGSop	0/+18	V
Continue Drain Current TC=25°C	$I_D$	18	A
Continue Drain Current TC=100°C		14	A
Pulsed Drain Current (Note1)	$I_{DM}$	36	A
Power Dissipation	$P_D$	41	W
Operating Temperature Range	$T_J$	-55 to +175	°C
Storage Temperature Range	$T_{STG}$	-55 to +175	°C
Thermal Resistance, Junction to Case	$R_{\theta JC}$	3.6	°C/W

Note1:Pulse test: 300  $\mu$ 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	$V_{GS} = 0 V, I_D = 100\mu A$	$BV_{DSS}$	800	-	-	V
Drain-Source Leakage Current	$V_{DS} = 800 V, V_{GS} = 0 V$	$I_{DSS}$	-	1	10	$\mu A$
Gate Leakage Current	$V_{GS} = 18 V, V_{DS} = 0 V$	$I_{GSS}$	-	-	250	nA
Gate-Source Threshold Voltage	$V_{DS} = V_{GS}, I_D = 3.5 mA$	$V_{GS(th)}$	2.6	3.1	4.6	V
Drain-Source On-State Resistance	$V_{GS} = 15 V, I_D = 8.5 A$	$R_{DS(on)}$	-	190	-	m $\Omega$
	$V_{GS} = 15 V, I_D = 8.5 A, T_J = 175^\circ C$		-	160	-	
	$V_{GS} = 18 V, I_D = 8.5 A$		-	128	167	
	$V_{GS} = 18 V, I_D = 8.5 A, T_J = 175^\circ C$		-	135	-	
Input Capacitance	$V_{GS} = 0 V, V_{DS} = 400 V, f = 1MHz$	$C_{iss}$	-	492	-	pF
Output Capacitance		$C_{oss}$	-	40	-	pF
Reverse Transfer Capacitance		$C_{rss}$	-	4.2	-	pF
Internal Gate Resistance	$f=1MHz$	$RG(int)$	-	3.3	-	$\Omega$
Total Gate Charge(Note2)	$I_D = 8.5A, V_{DD} = 400 V, V_{GS} = 0/18 V$	$Q_G$	-	30.5	-	nC
Gate to Source Charge(Note2)		$Q_{GS}$	-	11.7	-	nC
Gate to Drain Charge(Note2)		$Q_{GD}$	-	6.6	-	nC
Turn-on Delay Time(Note2)	$V_{DS} = 400 V, I_D = 8.5 A, V_{GS} = 0/18 V, RG = 5 \Omega$	$t_{d(ON)}$	-	12.4	-	ns
Rise Time(Note2)		$t_r$	-	38.4	-	ns
Turn-Off Delay Time(Note2)		$t_{d(OFF)}$	-	26.4	-	ns
Fall Time(Note2)		$t_f$	-	39.6	-	ns

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

Parameter	Test Condition	Symbol	Min.	Typ.	Max.	Unit
Maximun Body-Diode Continuous Current	VGS=-4V Tc=25°C	I <sub>S</sub>	-	18	-	A
	VGS=-4V Tc=100°C		-	14	-	A
Maximun Body-Diode Pulsed Current(Note2)		I <sub>SM</sub>	-	-	22	A
Drain-Source Diode Forward Voltage	VGS=0V, ISD=5A Tj=25°C	V <sub>SD</sub>	-	3.4	-	V
Reverse Recovery Time(Note2)	VGS=-0V, ISD=8.5A, VR=400V, di/dt=800A/μs	trr	-	13.6	-	ns
Reverse Recovery Charge(Note2)		Qrr	-	38.1	-	nC
Peak Reverse Recovery Current		Irrm	-	4.5	-	A

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

### RATINGS AND CHARACTERISTIC CURVES

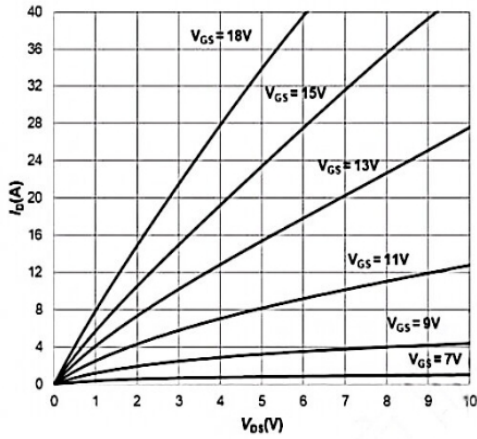


Fig1. Output Characteristics  $T_j=25^\circ\text{C}$

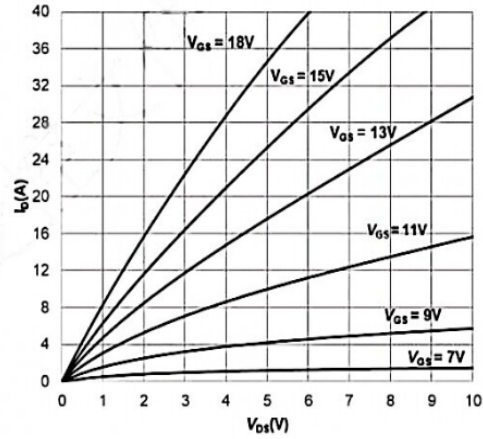


Fig2. Output Characteristics  $T_j=175^\circ\text{C}$

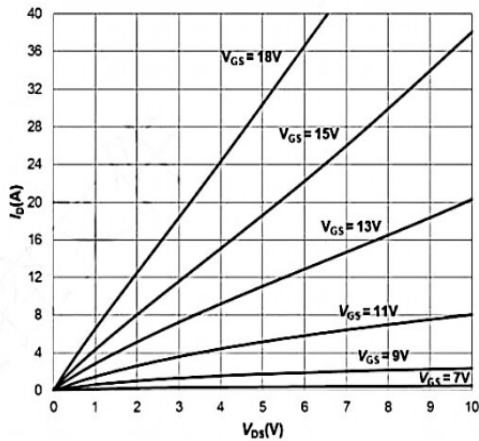


Fig3. Output Characteristics  $T_j=-40^\circ\text{C}$

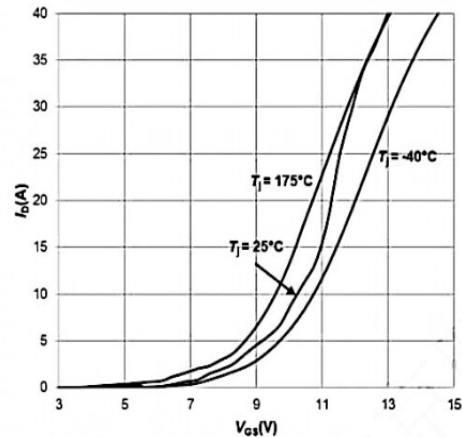


Fig4. Typical Transfer Characteristics

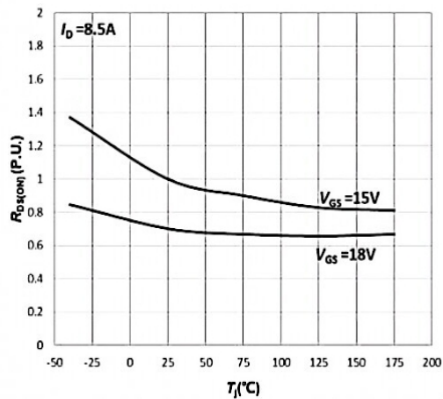


Fig5. Normalized On-Resistance vs. Temperature

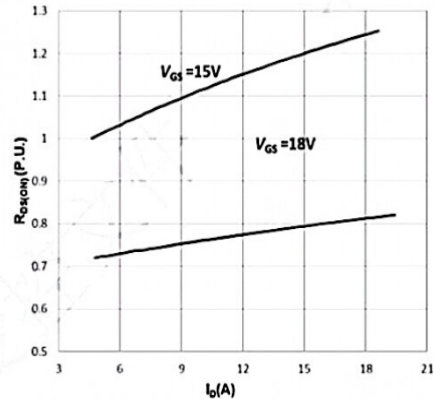


Fig6. Normalized On-Resistance vs. Drain Current For  $T_j=25^\circ\text{C}$

### RATINGS AND CHARACTERISTIC CURVES

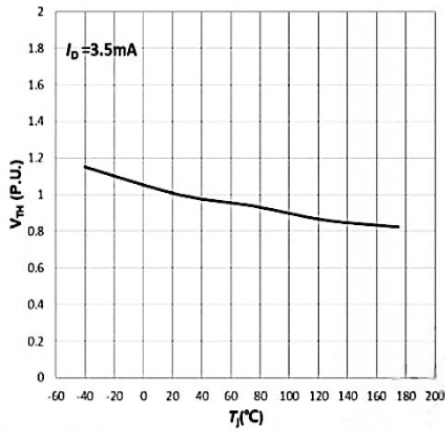


Fig7. Normalized Threshold Voltage vs. Temperature

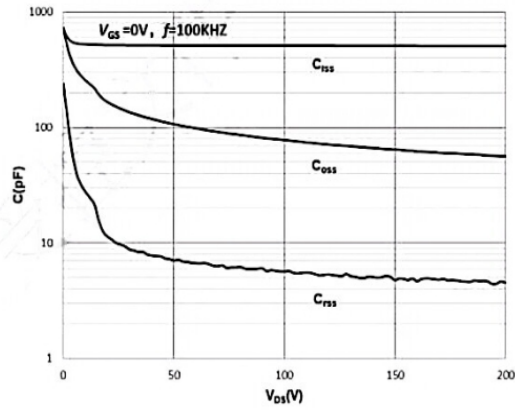


Fig8. Capacitances vs. Drain-Source Voltage (0-200V)

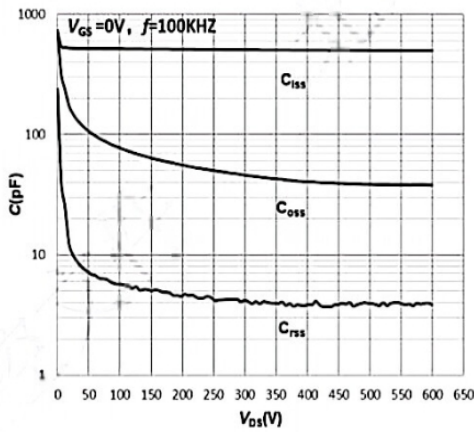


Fig9. Capacitances vs. Drain-Source Voltage (0-600V)

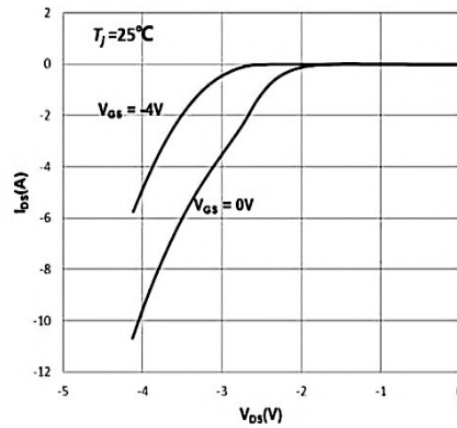


Fig10. Body Diode Characteristics

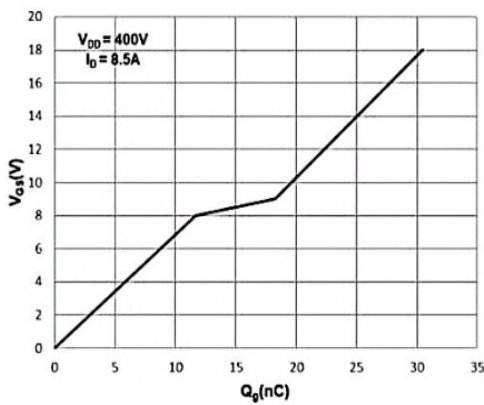


Fig11. Typical Gate Charge

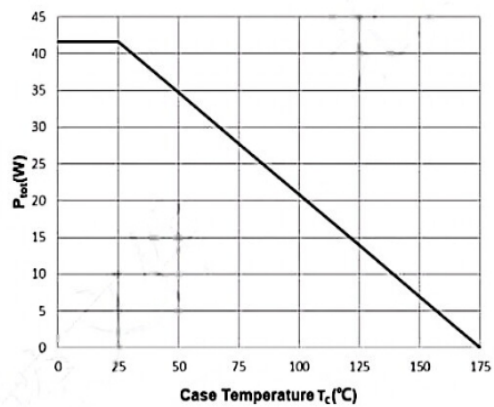


Fig12. Power Dissipation vs. Case Temperature

**RATINGS AND CHARACTERISTIC CURVES**

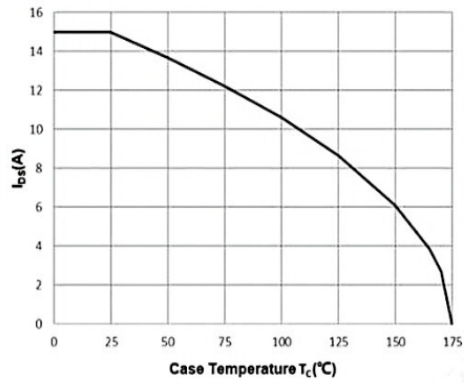
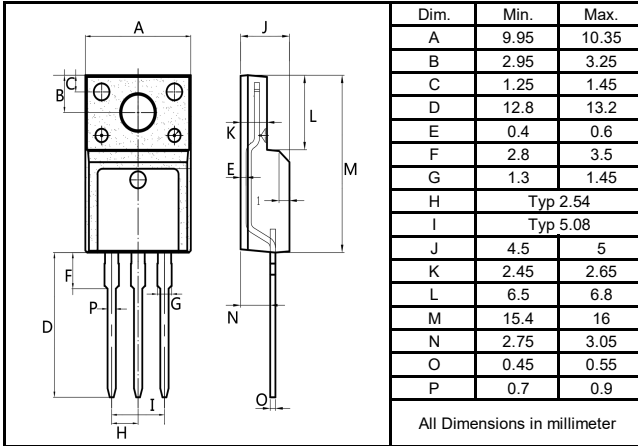


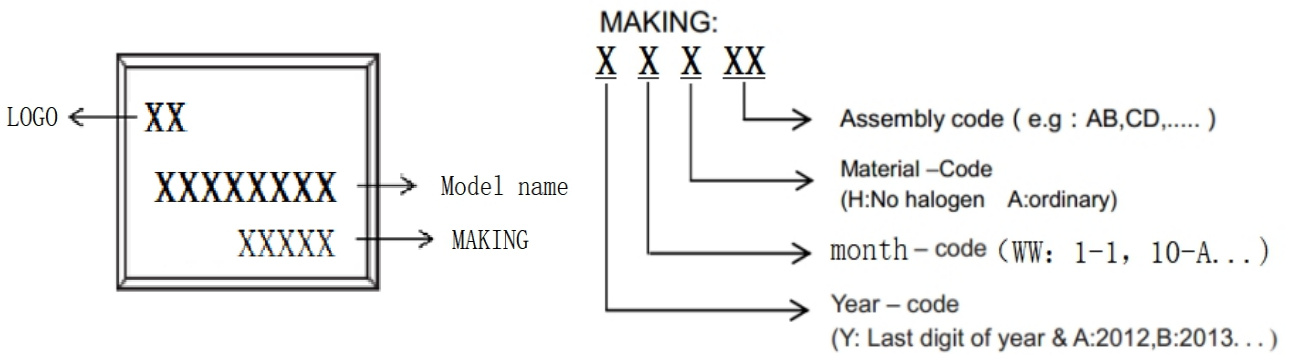
Fig13. Maximum DC Drain to Source Current vs. Case Temperature

## Package Outline Dimensions millimeters

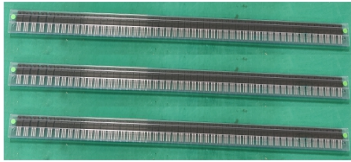


TO-220F



## Marking on the body



## packing instruction

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

### 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.

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### Revision History

Rev	Changes	Date
1.0	First version	2026/1/23