

MAIN CHARACTERISTICS

I_D	5A
V_{DSS}	650V
$R_{DS(on)-typ}$ (@ $V_{GS}=10V$)	1.9 Ω

FEATURES

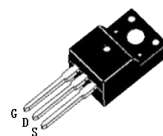
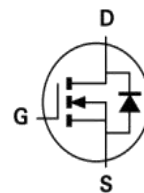
- Fast Switching
- Low ON Resistance
- Low Gate Charge
- 100% Single Pulse avalanche energy Test

APPLICATIONS

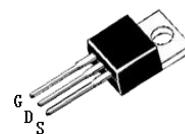
- Power switch circuit of adaptor and charger.

MECHANICAL DATA

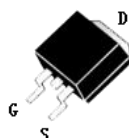
- Case: Molded plastic
- Mounting Position: Any
- Molded Plastic: UL Flammability Classification Rating 94V-0
- Lead free in compliance with EU RoHS 2011/65/EU directive
- Solder bath temperature 275°C maximum, 10s per JESD 22-B106



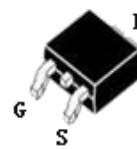
TO-220F



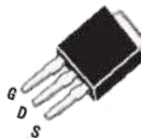
TO-220AB



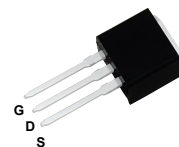
TO-263



TO-252



TO-251



TO-262

Product specification classification

Part Number	Package	Mode Name	Pack
CS5N65A2	TO-220F (0.5mm)	CS5N65A	Tube
CS5N65A1	TO-220AB	CS5N65A	Tube
CS5N65A3	TO-263	CS5N65A	Tube
CS5N65A3-R	TO-263	CS5N65A	Tape
CS5N65A4	TO-251	CS5N65A	Tube
CS5N65A5-R	TO-252	CS5N65A	Tape
CS5N65A0	TO-262	CS5N65A	Tape

Maximum Ratings at Tc=25°C unless otherwise specified

Characteristics	Symbol	Value		Unit
		220AB/263/251/252/262	220F	
Drain-Source Voltage	V_{DS}	650		V
Gate-Source Voltage	V_{GS}	± 30		V
Continue Drain Current	I_D	5		A
Pulsed Drain Current (Note1)	I_{DM}	20		A
Power Dissipation	P_D	85	30	W
Single Pulse Avalanche Energy (Note1)	E_{AS}	200		mJ
Operating Temperature Range	T_J	150		°C
Storage Temperature Range	T_{STG}	-55 to +150		°C
Thermal Resistance, Junction to Case	$R_{\theta JC}$	1.67	4.17	°C/W
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	62.5	100	°C/W

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

Electrical Characteristics at Tc=25°C unless otherwise specified

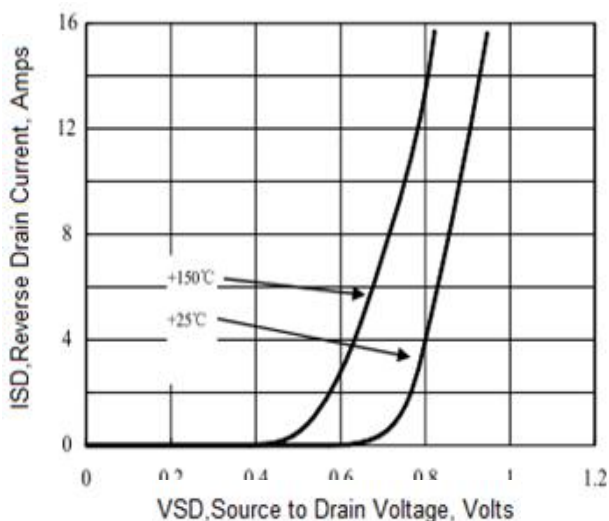
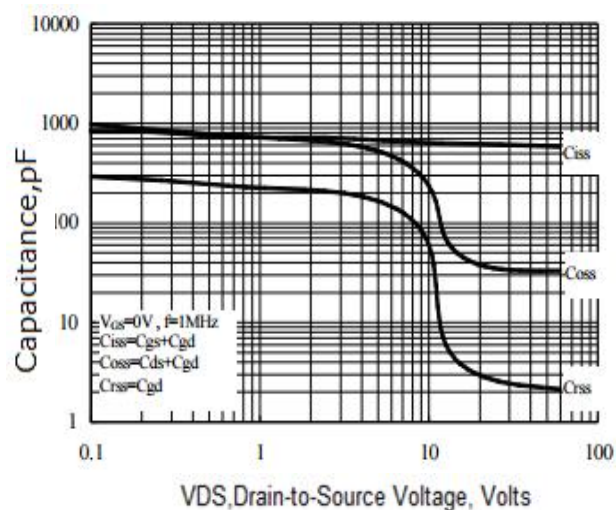
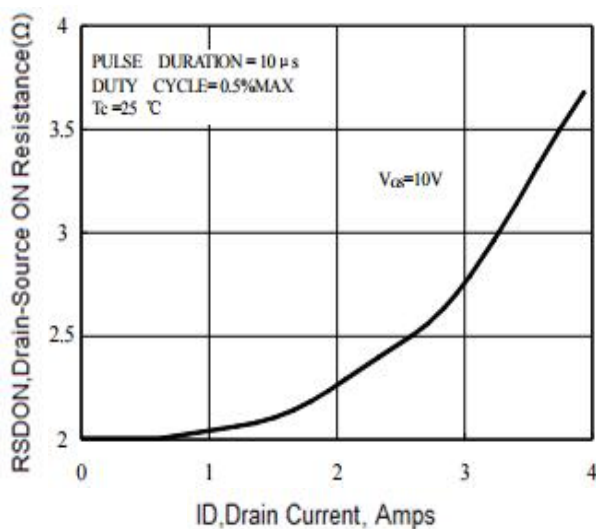
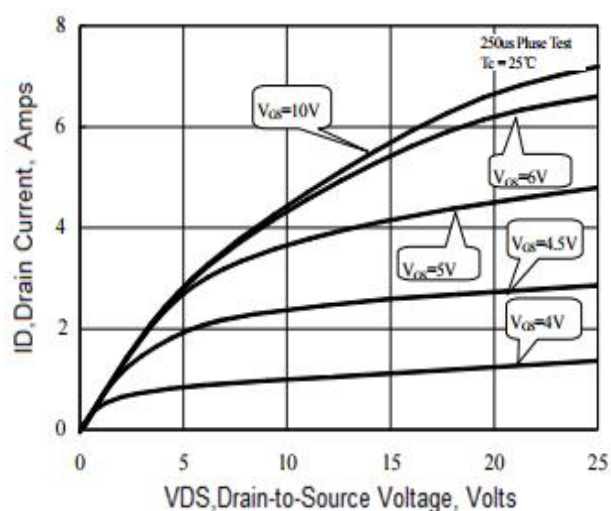
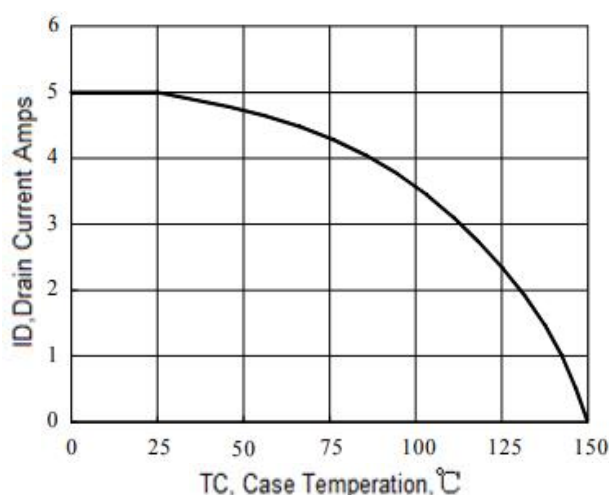
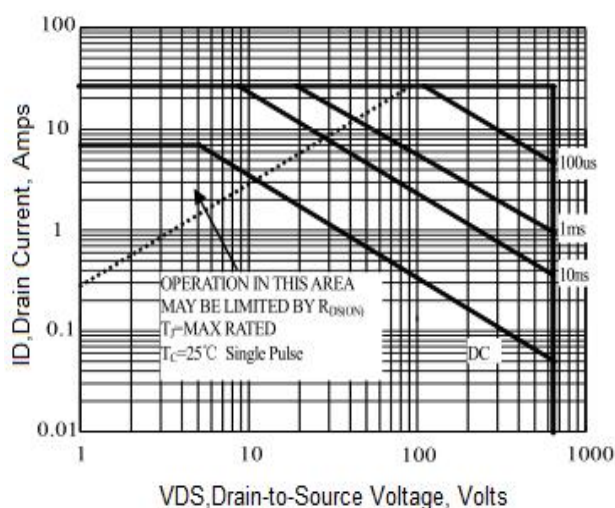
Characteristics	Test Condition	Symbol	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	$V_{GS} = 0\text{ V}, I_D = 250\text{ }\mu\text{A}$	BV_{DSS}	650	680	-	V
Drain-Source Leakage Current	$V_{DS} = 650\text{ V}, V_{GS} = 0\text{ V}$	I_{DSS}	-	-	1	μA
Gate Leakage Current	$V_{GS} = \pm 30\text{ V}, V_{DS} = 0\text{ V}$	I_{GSS}	-	-	± 100	nA
Gate-Source Threshold Voltage	$V_{DS} = V_{GS}, I_D = 250\text{ }\mu\text{A}$	$V_{GS(th)}$	2	-	4	V
Drain-Source On-State Resistance	$V_{GS} = 10\text{ V}, I_D = 2\text{ A}$	$R_{DS(on)}$	-	1.9	2.5	Ω
Forward Transconductance	$V_{DS} = 15\text{ V}, I_D = 2\text{ A}$	g_{fs}	-	3.5	-	S
Input Capacitance	$V_{GS} = 0\text{ V}, V_{DS} = 2\text{ V},$ $f = 200\text{ KHz}$	C_{iss}	-	623	-	pF
Output Capacitance		C_{oss}	-	55	-	pF
Reverse Transfer Capacitance		C_{rss}	-	8.5	-	pF
Turn-on Delay Time(Note2)	$I_D = 4\text{ A}, V_{DD} = 325\text{ V},$ $R_G = 10\text{ }\Omega$	$t_{d(ON)}$	-	8.5	-	ns
Rise Time(Note2)		t_r	-	6.5	-	ns
Turn-Off Delay Time(Note2)		$t_{d(OFF)}$	-	31	-	ns
Fall Time(Note2)		t_f	-	8.5	-	ns
Total Gate Charge(Note2)	$I_D = 4\text{ A}, V_{DD} = 520\text{ V},$ $V_{GS} = 10\text{ V}$	Q_G	-	15	-	nC
Gate to Source Charge(Note2)		Q_{GS}	-	2.8	-	nC
Gate to Drain Charge(Note2)		Q_{GD}	-	6.3	-	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		I_S	-	-	5	A
Maximun Body-Diode Pulsed Current(Note2)		I_{SM}	-	-	20	A
Drain-Source Diode Forward Voltage	$I_{SD} = 1\text{ A}$	V_{SD}	-	-	0.9	V
Reverse Recovery Time(Note2)	$I_{SD} = 4\text{ A}, V_{GS} = 0\text{ V},$ dIF /	t_{rr}	-	430	-	ns
Reverse Recovery Charge(Note2)	dt = 100 A/ μ s	Q_{rr}	-	1.27	-	μC

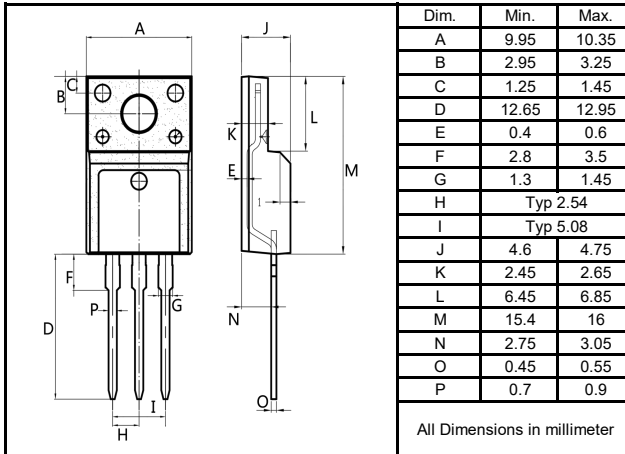
Note2:Pulse test: 300 μ s pulse width, 2 % duty cycle

RATINGS AND CHARACTERISTIC CURVES

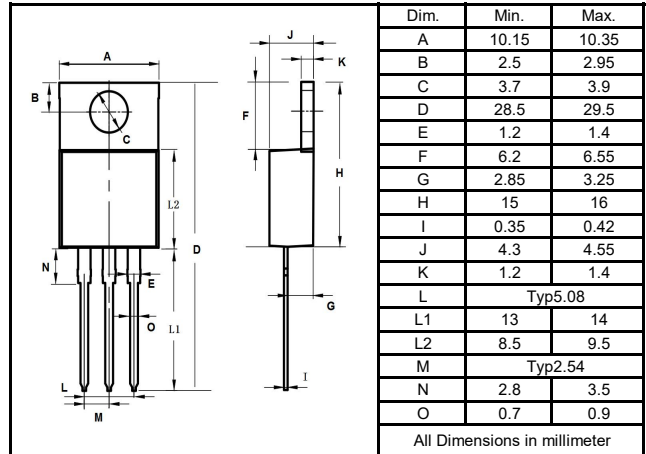


Package Outline Dimensions millimeters

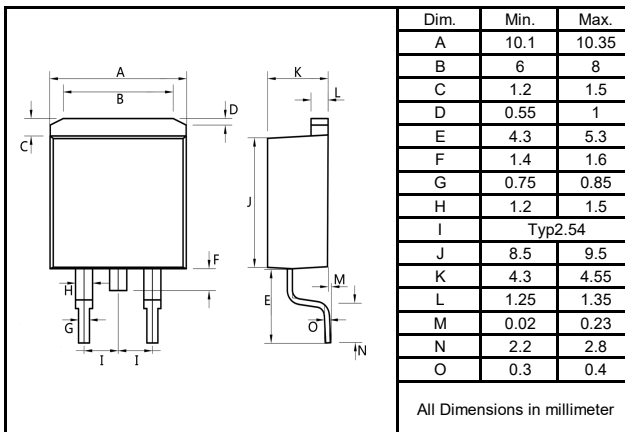
T0-220F



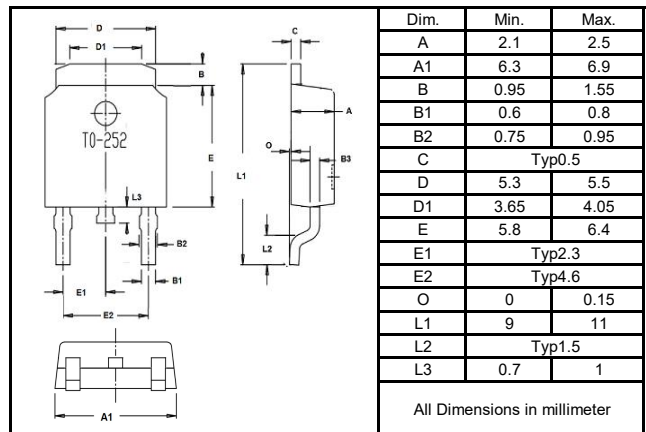
T0-220AB



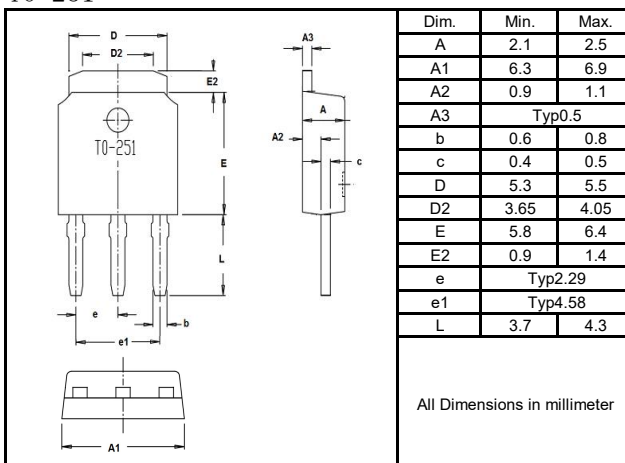
T0-263



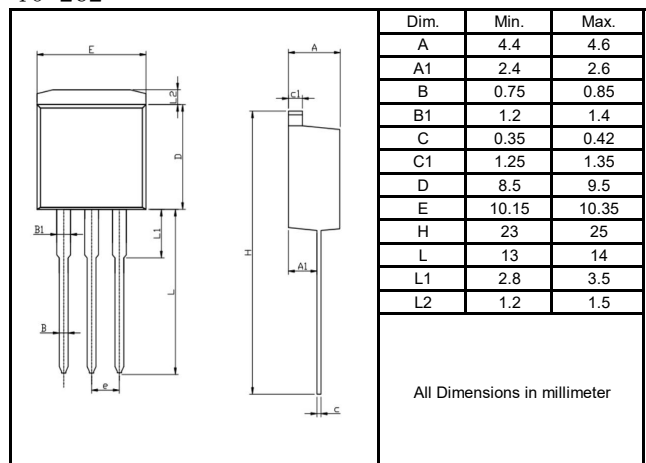
T0-252



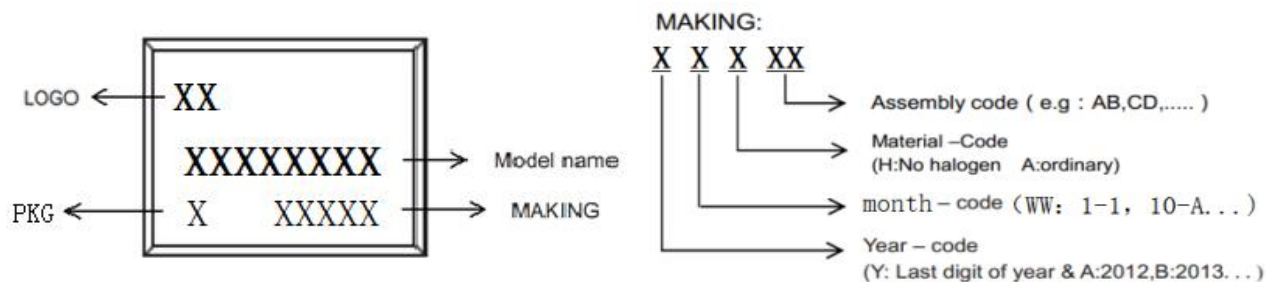
T0-251



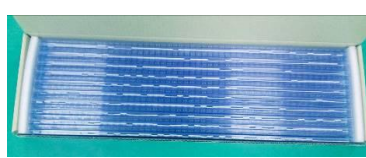
T0-262



Marking on the body



packing instruction

PKG	最小包装	内盒	外箱
TO-220F TO-220AB TO-263 TO-262			
	50pcs/管	1000pcs/盒	5000pcs/箱
TO-252			
	2500pcs/盘	5000pcs/盒	25000pcs/箱
TO-263-R			
	800pcs/盘	1600pcs/盒	8000pcs/箱
TO-251			
	80pcs/管	4000pcs/盒	24000pcs/箱

Notice

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

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