

LN370N65-Series

370mΩ, 650V N-Channel Super Junction Power MOSFET

1. FEATURES

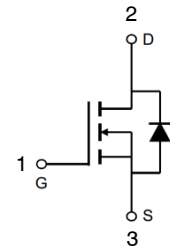
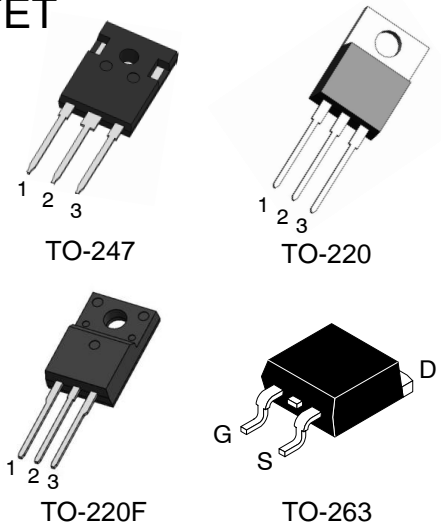
- VDS = 650 V
- Fast switching capability.
- We declare that the material of product compliance with RoHS requirements and Halogen Free.

2. APPLICATIONS

- LED Lighting Power
- High Performance Charger/Adapter
- Switch mode power supplies (SMPS)

3. DEVICE MARKING AND RESISTOR VALUES

Device	Package	Marking	MOQ	Form
LN370N65P	TO-247	370N65P	1500	Tube
LN370N65AC	TO-220	370N65AC	1000	Tube
LN370N65AF3	TO-220F	370N65AF3	1000	Tube
LN370N65E2	TO-263	370N65E2	800	Tape&Reel



4. MAXIMUM RATINGS

Parameter		Symbol	Limits	Unit
Drain-to-Source Voltage		VDS	650	V
Gate-to-Source Voltage		VGS	± 30	V
Continuous Drain Current	TC=25°C	ID	10.5	A
	TC=100°C		6.6	
Pulsed Drain Current (Note 2)		IDM	21	A
Avalanche Energy(VDD=50V,VGS=10V,L=10mH)		EAS	65	mJ
Power Dissipation TO-247/TO220/TO263	TC=25°C	PD	83	W
Power Dissipation TO-220F	TC=25°C		31	
Operating Junction and Storage Temperature Range		Tj/Tstg	-55~+150	°C

5. THERMAL CHARACTERISTICS

Package	Parameter	Symbol	Max	Unit
TO-247/ TO-220	Junction-to-Ambient	RθJA	65	°C/W
	Junction-to-Case	RθJC	1.5	
TO-220F	Junction-to-Ambient	RθJA	70	°C/W
	Junction-to-Case	RθJC	4	
TO-263	Junction-to-Ambient(Note 1)	RθJA	50	°C/W
	Junction-to-Case	RθJC	1.5	

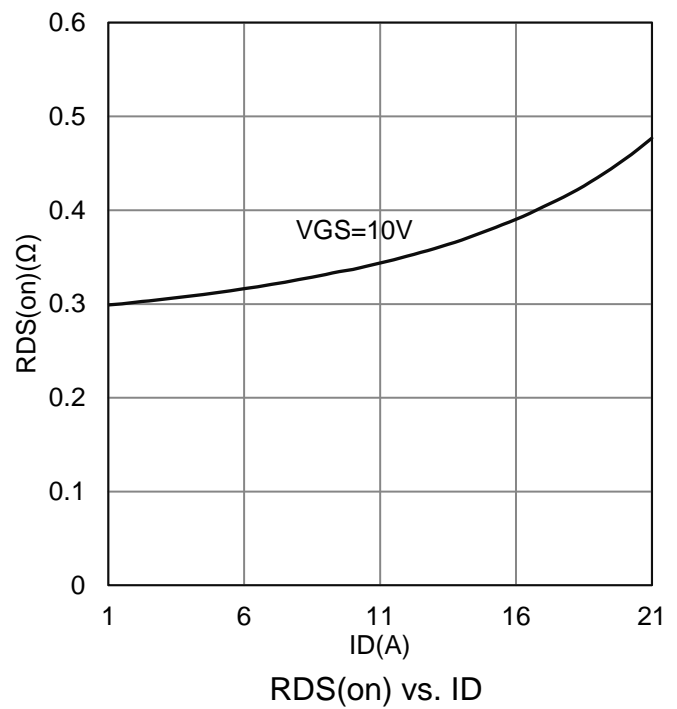
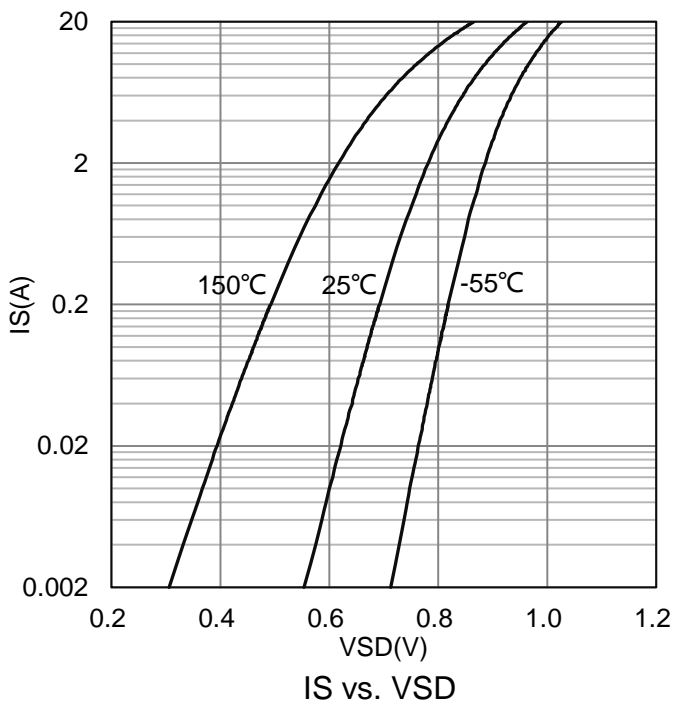
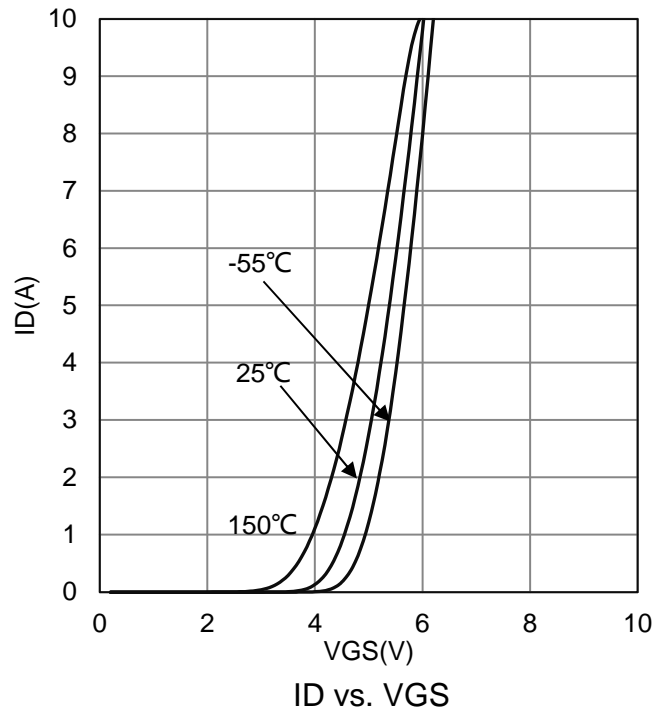
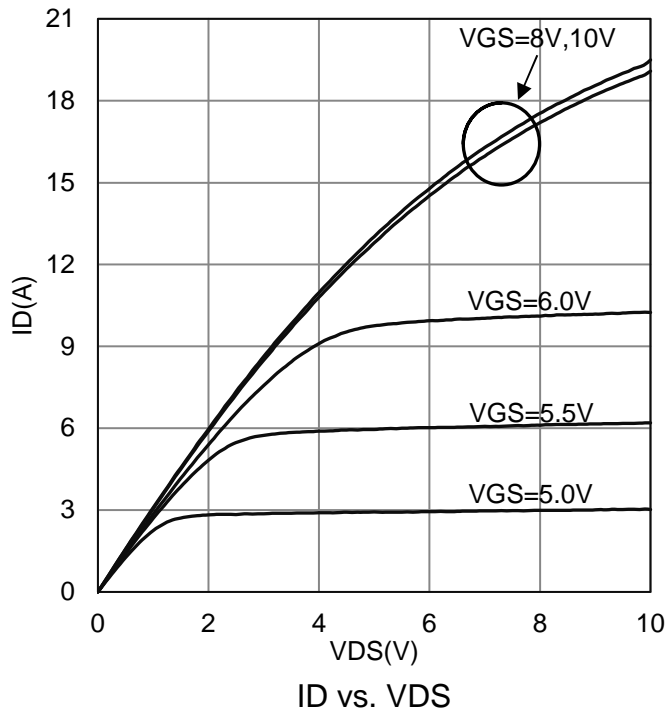
Note 1. Surface mounted on 1.5 x 1.5 FR4 board using 1 sq in pad, 2 oz Cu.

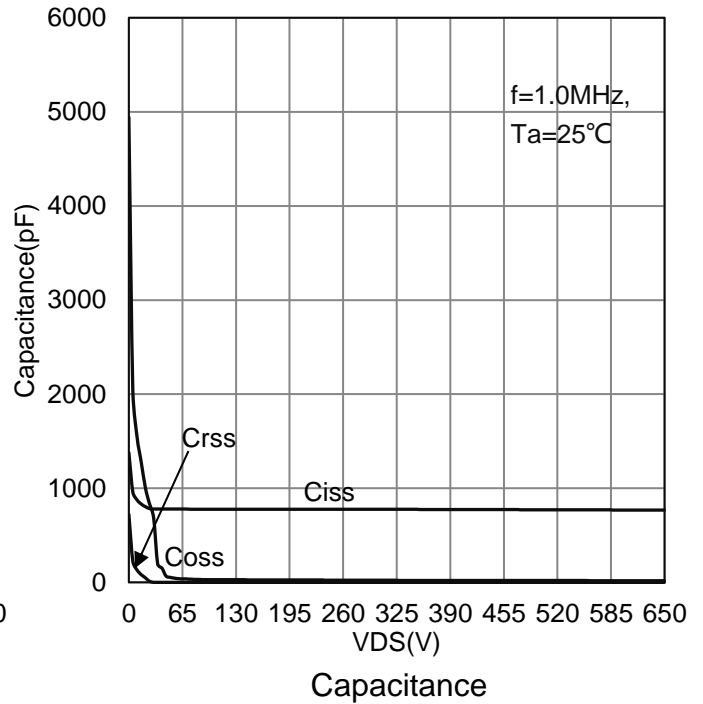
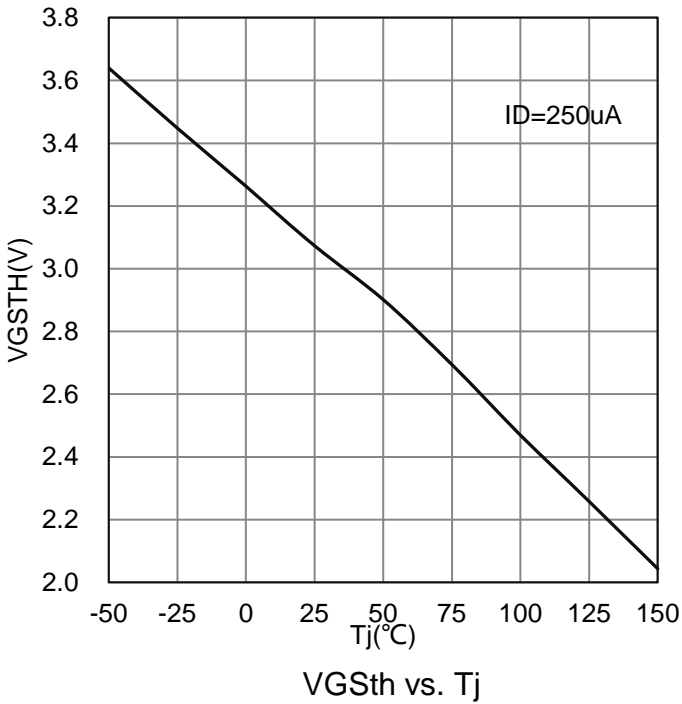
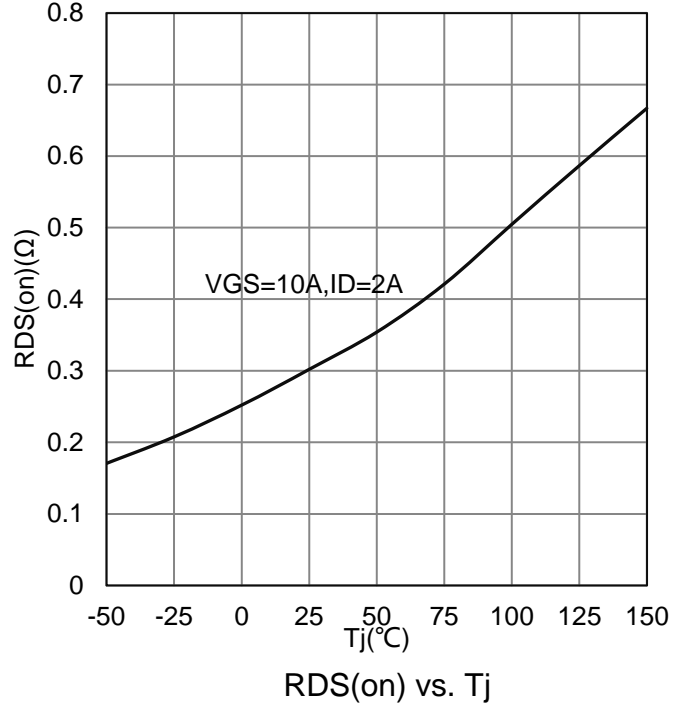
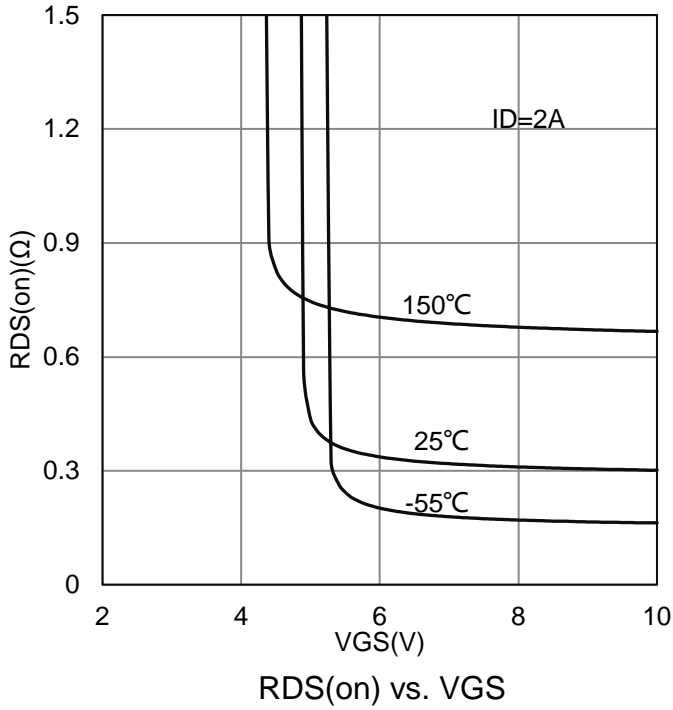
2. Pulse width limited by maximum junction temperature.

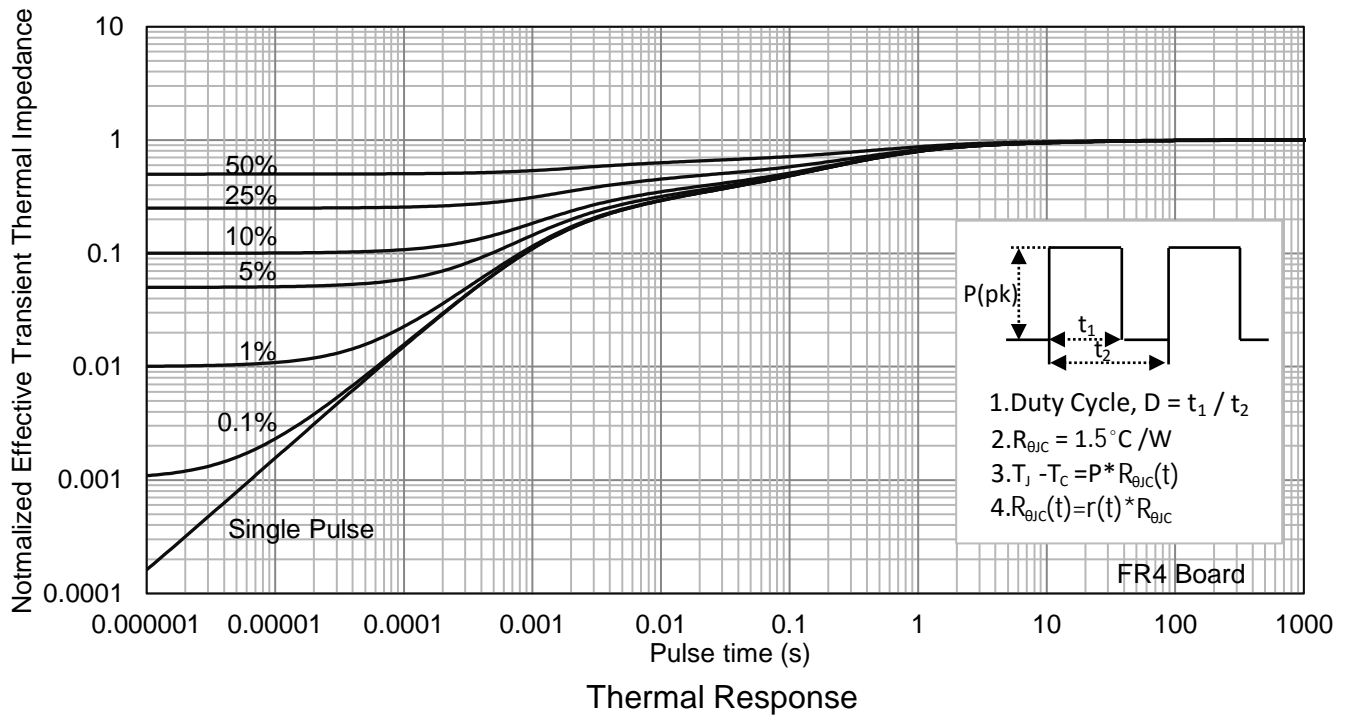
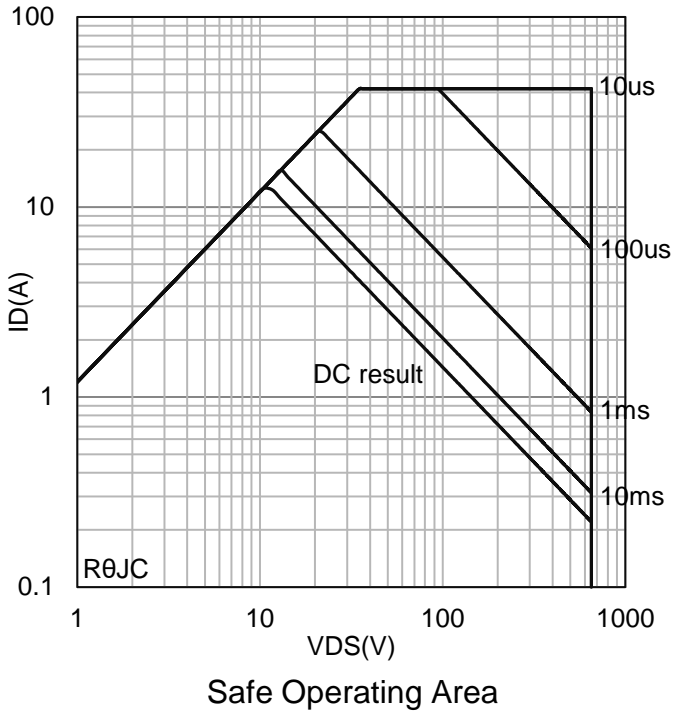
6. ELECTRICAL CHARACTERISTICS (Ta= 25°C)

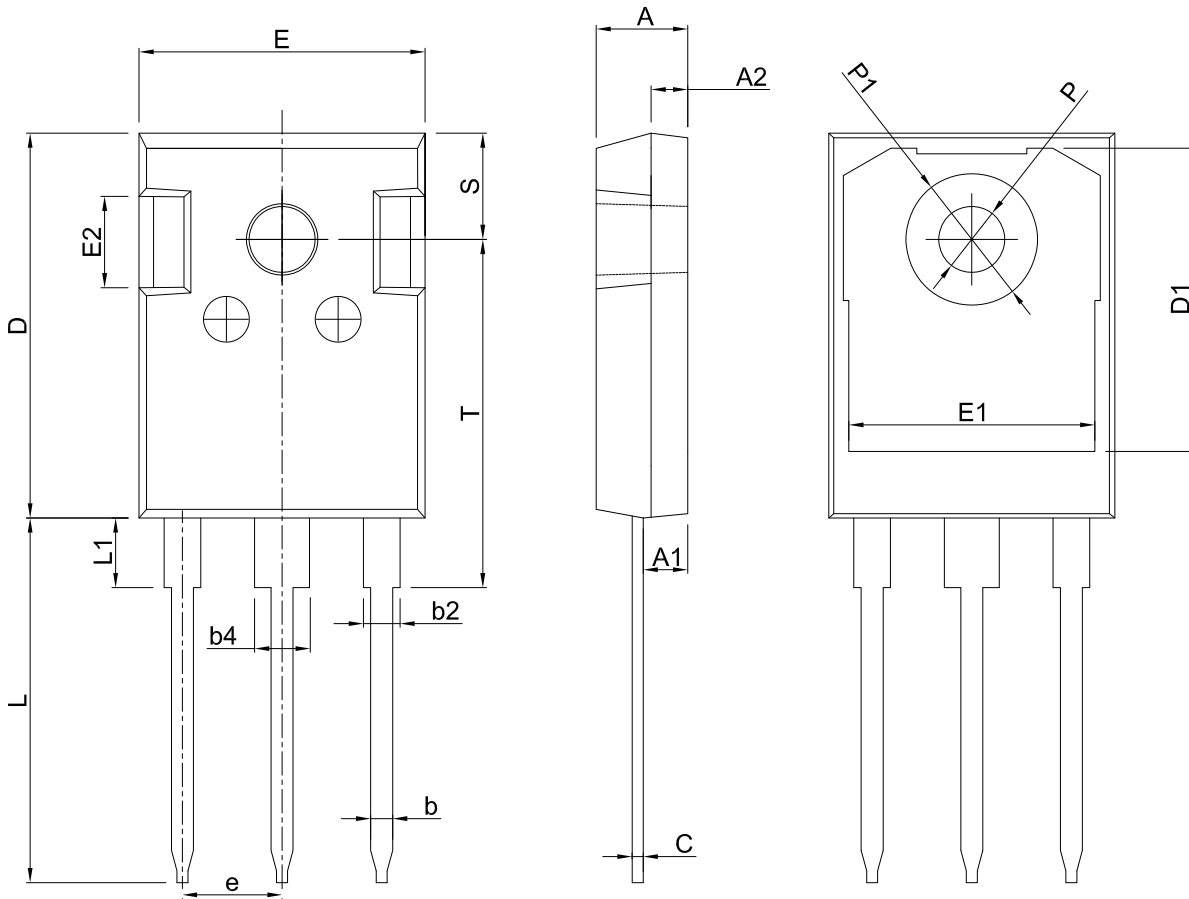
Characteristic	Symbol	Min.	Typ.	Max.	Unit
Static					
Drain-Source Breakdown Voltage (VGS = 0 V, ID = 250 μA)	VBRDSS	650	-	-	V
Gate Threshold Voltage (VDS = VGS, ID = 250 μA)	VGS(th)	2	-	4	V
Gate-Body leakage current (VDS = 0 V, VGS = ±30 V)	IGSS	-	-	±100	nA
Zero Gate Voltage Drain Current (VDS = 650 V, VGS = 0 V)	IDSS	-	-	1	μA
Drain-to-Source On-Resistance (Note 3) (VGS = 10 V, ID = 2 A)	RDS(ON)	-	-	370	mΩ
Diode Forward Voltage (IS = 1 A, VGS = 0 V)	VSD	-	-	1	V
Dynamic					
Total Gate Charge	(VDS = 400 V, VGS = 10 V, ID = 5 A)	Qg	-	32	nC
Gate to Source Charge		Qgs	-	9	
Gate to Drain Charge		Qgd	-	11	
Turn-on Delay Time	(VDS = 400 V, ID = 5 A, VGS = 10 V, RG = 10Ω)	td(on)	-	5.1	nS
Rise Time		tr	-	8.5	
Turn-Off Delay Time		td(off)	-	35.5	
Fall Time		tf	-	8.7	
Input Capacitance	(VDS = 400 V, VGS = 0 V, f = 1 MHz)	Ciss	-	781	pF
Output Capacitance		Coss	-	28	
Reverse Transfer Capacitance		Crss	-	3	
Reverse Recovery Time (IF=1A, di/dt=100A/us, VR=400V)	trr	-	138	-	nS
Reverse Recovery Charge (IF=1A, di/dt=100A/us, VR=400V)	Qrr	-	900	-	nC
Peak Reverse Recovery Current (IF = 1A, di/dt = 100 A/us, VR = 400 V)	IRRM	-	12	-	A
Gate-Resistance (VDS=0V, VGS=0V, f=1.0MHz)	Rg	-	4	-	Ω

3. Pulse test: PW ≤ 300μs duty cycle ≤ 2%.

7. ELECTRICAL CHARACTERISTICS CURVES


7. ELECTRICAL CHARACTERISTICS CURVES(Con.)


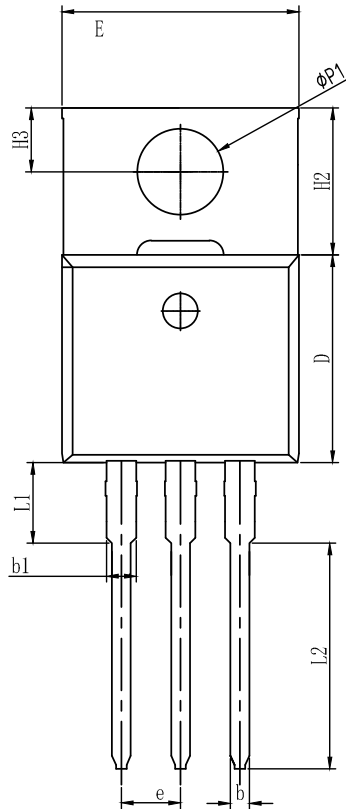
7. ELECTRICAL CHARACTERISTICS CURVES(Con.)


8.OUTLINE AND DIMENSIONS
TO-247


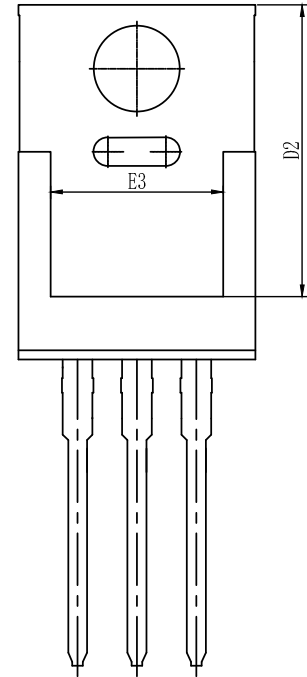
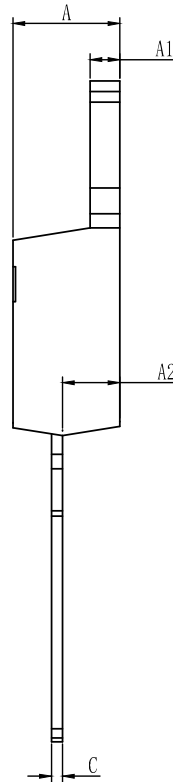
SYMBOL	UNIT:mm		
	MIN.	NOM.	MAX.
A	4.80	5.00	5.20
A1	2.20	2.40	2.60
A2	1.85	2.00	2.15
b	1.10	1.21	1.35
b2	1.90	2.01	2.20
b4	2.90	3.01	3.20
C	0.51	0.61	0.71
D	20.80	21.00	21.20
D1	16.25	16.55	16.85
E	15.60	15.80	16.00
E1	13.10	13.40	13.70
E2	4.60	4.80	5.00
e	5.44 BSC		
L	19.72	19.92	20.12
L1	-	3.80	4.30
P	3.40	3.60	3.80
P1		7.10	7.30
S	6.15 BSC		
T	19.00 BSC		

8.OUTLINE AND DIMENSIONS(Con.)

TO-220



TOP VIEW

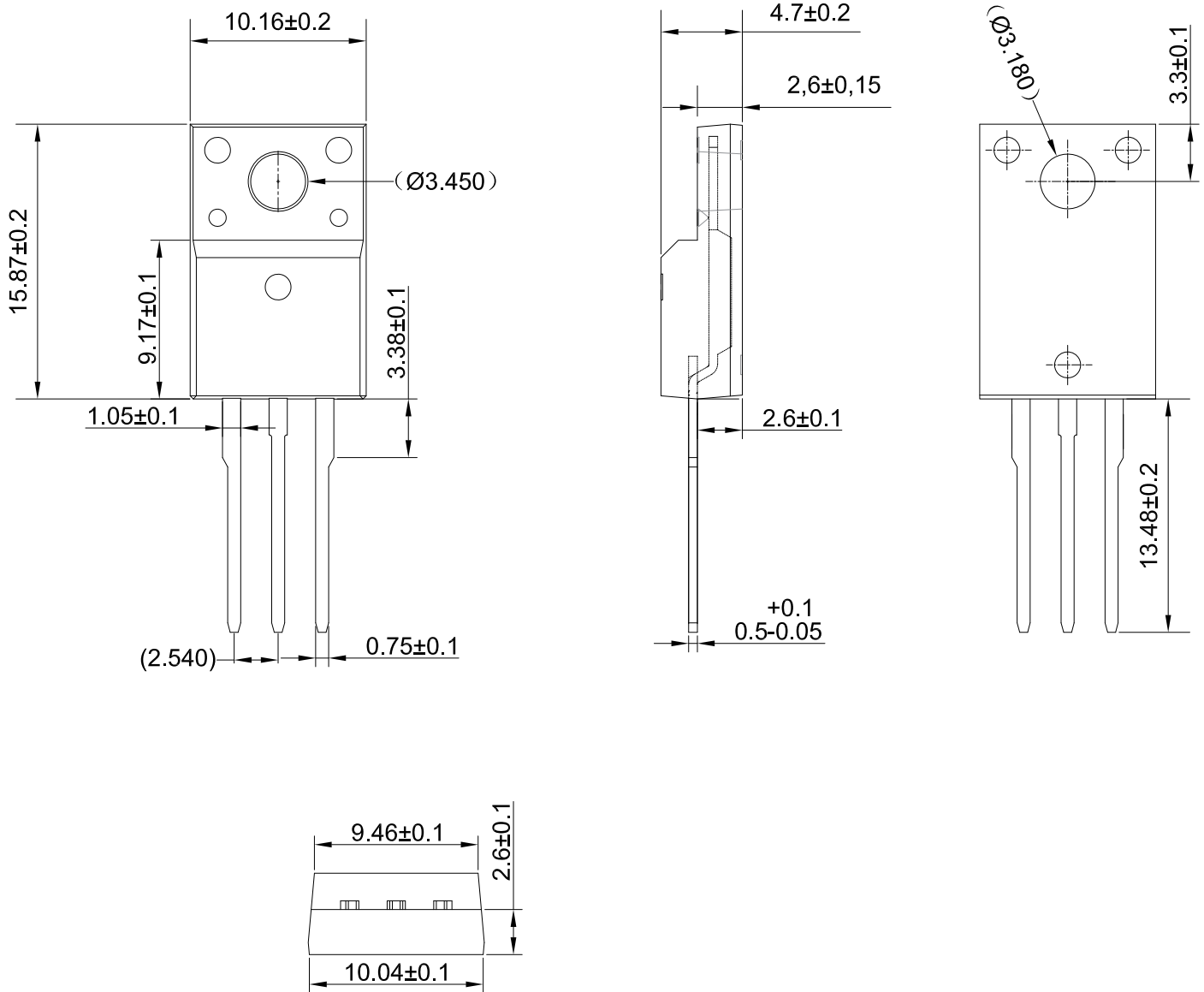


BOTTOM VIEW

GENERAL NOTES

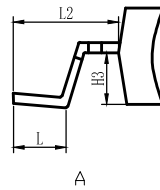
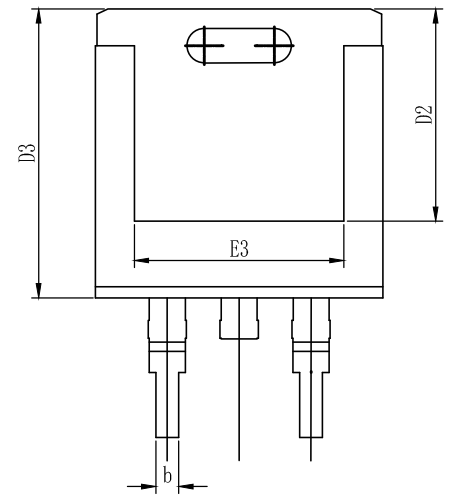
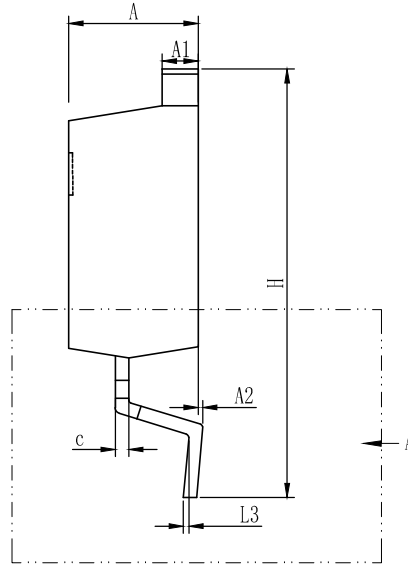
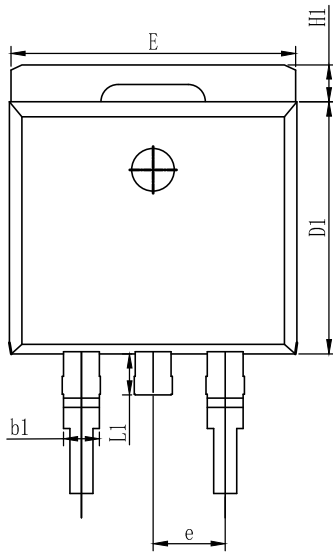
1. Top package surface finish Ra Max1.2±0.2um
2. Bottom package surface finish Ra Max0.2um
3. Protrusion or Gate Burrs shall not exceed 0.05mm per side.
4. Off center Max0.05mm; Mismatch Max 0.05mm.

DIM	MILLIMETERS		
	MIN	NOM	MAX
A	4.42	4.57	4.72
A1	1.20	1.30	1.40
A2	2.35	2.45	2.55
b	0.73	0.83	0.93
b1	1.20	1.30	1.40
c	0.41	0.48	0.58
D	8.70	8.90	9.10
D2	12.20	12.50	12.80
E	9.85	10.15	10.45
E3	7.10	7.40	7.70
e	2.54BSC		
H2	6.10	6.30	6.50
H3	2.54	2.74	2.94
L1	3.16	3.46	3.76
L2	9.36	9.66	9.96
ØP1	3.48	3.68	3.88

8.OUTLINE AND DIMENSIONS(Con.)
TO-220F


8.OUTLINE AND DIMENSIONS(Con.)

TO-263



DIM	MILLIMETERS		
	MIN	NOM	MAX
A	4.42	4.57	4.72
A1	1.20	1.30	1.40
A2	0.00	-	0.25
b	0.73	0.83	0.93
b1	1.20	1.30	1.40
c	0.41	0.48	0.58
D1	8.70	8.90	9.10
D2	7.20	-	-
D3	9.91	10.21	10.51
E	9.75	10.05	10.35
E3	7.10	-	7.70
e	2.54BSC		
H	14.84	15.14	15.44
H1	1.10	1.30	1.50
H3	2.35	2.45	2.55
L	2.18	2.48	2.78
L1	-	-	1.75
L2	4.69	4.99	5.29
L3	0.25BSC		

DISCLAIMER

- Curve guarantee in the specification. The curve of test items with electric parameter is used as quality guarantee. The curve of test items without electric parameter is used as reference only.
- Before you use our Products for new Porject, you are requested to carefully read this document and fully understand its contents. LRC shall not be in any way responsible or liable for failure, malfunction or accident arising from the use of any LRC's Products against warning, caution or note contained in this document.
- All information contained in this document is current as of the issuing date and subject to change without any prior notice. Before purchasing or using LRC's Products, please confirm the latest information with a LRC sales representative.