



JCS3AN150A

主要参数 MAIN CHARACTERISTICS

ID	3 A
VDSS	1500 V
Rdson-max (@Vgs=10V))	8.0 Ω
Qg-typ	37nC

用途

- 高频开关电源
- 电子镇流器
- UPS 电源

APPLICATIONS

- High efficiency switch mode power supplies
- Electronic lamp ballasts based on half bridge
- UPS

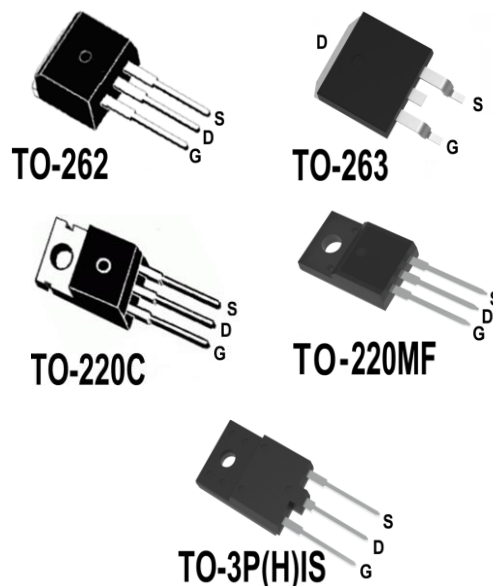
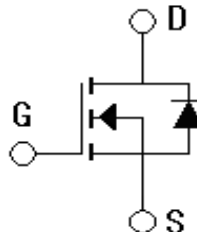
产品特性

- 低栅极电荷
- 低 C_{RSS} (典型值 29pF)
- 开关速度快
- 产品全部经过雪崩测试
- 高抗 dv/dt 能力
- RoHS 产品

FEATURES

- Low gate charge
- Low C_{RSS} (typical 29pF)
- Fast switching
- 100% avalanche tested
- Improved dv/dt capability
- RoHS product

封装 Package



订货信息 ORDER MESSAGE

订货型号 Order codes				印 记 Marking	封 装 Package
有卤-条管 Halogen-Tube	无卤-条管 Halogen-Free-Tube	有卤-编带 Halogen-Reel	无卤-编带 Halogen-Free-Reel		
JCS3AN150CA-C-B	JCS3AN150CA-C-BR	N/A	N/A	JCS3AN150CA	TO-220C
JCS3AN150FA-F-B	JCS3AN150FA-F-BR	N/A	N/A	JCS3AN150FA	TO-220MF
JCS3AN150AA-A-B	JCS3AN150AA-A-BR	N/A	N/A	JCS3AN150AA	TO-3P(H)IS
N/A	JCS3AN150SA-S-BR	N/A	JCS3AN150SA-S-AR	JCS3AN150SA	TO-263
N/A	JCS3AN150BA-B-BR	N/A	N/A	JCS3AN150BA	TO-262

绝对最大额定值 ABSOLUTE RATINGS ($T_c=25^{\circ}\text{C}$)

项 目 Parameter	符 号 Symbol	数 值 Value			单 位 Unit
		JCS3AN150 CA/BA/SA	JCS3AN150 AA	JCS3AN150 FA	
最高漏极-源极直流电压 Drain-Source Voltage	V_{DS}	1500			V
连续漏极电流 Drain Current -continuous	I_D $T=25^{\circ}\text{C}$ $T=100^{\circ}\text{C}$	3*			A
		1.8*			A
最大脉冲漏极电流 (注 1) Drain Current -pulse (note 1)	I_{DM}	12*			A
最高栅源电压 Gate-Source Voltage	V_{GS}	± 30			V
单脉冲雪崩能量 Single Pulsed Avalanche Energy	E_{AS}	460			mJ
雪崩电流 (注 1) Avalanche Current (note 1)	I_{AR}	3			A
耗散功率 Power Dissipation	P_D $T_c=25^{\circ}\text{C}$ -Derate above 25°C	368	69	36.7	W
最高结温及存储温度 Operating and Storage Temperature Range	T_J, T_{STG}	$-55 \sim +150$			$^{\circ}\text{C}$
引线最高焊接温度 Maximum Lead Temperature for Soldering Purposes	T_L	300			$^{\circ}\text{C}$

*漏极电流由最高结温限制

*Drain current limited by maximum junction temperature





电特性 ELECTRICAL CHARACTERISTIC

项 目 Parameter	符 号 Symbol	测试条件 Tests conditions	最小 Min	典型 Typ	最大 Max	单 位 Units
关态特性 Off –Characteristics						
漏—源击穿电压 Drain-Source Voltage	BV_{DSS}	$I_D=250\mu A, V_{GS}=0V$	1500	-	-	V
击穿电压温度特性 Breakdown Voltage Temperature Coefficient	$\Delta BV_{DSS} / \Delta T_J$	$I_D=250\mu A$, referenced to $25^\circ C$	-	0.5	-	V/ $^\circ C$
零栅压下漏极漏电流 Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=1500V, V_{GS}=0V,$ $T_J=25^\circ C$	-	-	10	μA
		$V_{DS}=1500V, T_C=125^\circ C$	-	-	500	μA
正向栅极体漏电流 Gate-body leakage current, forward	I_{GSSF}	$V_{DS}=0V, V_{GS}=30V$	-	-	100	nA
反向栅极体漏电流 Gate-body leakage current, reverse	I_{GSSR}	$V_{DS}=0V, V_{GS}=-30V$	-	-	-100	nA
通态特性 On-Characteristics						
阈值电压 Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D=250\mu A$	3.0	-	5.0	V
正向跨导 Forward Transconductance	g_{fs}	$V_{DS} = 30V, I_D=3A$ (note 3)	-	5.8	-	S
静态导通电阻 Static Drain-Source On-Resistance	$R_{DS(ON)}$	$V_{GS}=10V, I_D=1.5A$	-	6.3	8.0	Ω
动态特性 Dynamic Characteristics						
输入电容 Input capacitance	C_{iss}	$V_{DS}=25V,$ $V_{GS}=0V,$ $f=1.0MHz$	-	824	1236	pF
输出电容 Output capacitance	C_{oss}		-	127	190.5	pF
反向传输电容 Reverse transfer capacitance	C_{rss}		-	29	43.5	pF





电特性 ELECTRICAL CHARACTERISTICS

项 目 Parameter	符 号 Symbol	测试条件 Tests conditions	最小 Min	典型 Typ	最大 Max	单位 Units
开关特性 Switching –Characteristics						
延迟时间 Turn-On delay time	t _{d(on)}	V _{DD} =750V, I _D =3A, R _G =4.7Ω（note 3, 4）	-	31	46.5	ns
上升时间 Turn-On rise time	t _r		-	56	84	ns
延迟时间 Turn-Off delay time	t _{d(off)}		-	105	157.5	ns
下降时间 Turn-Off Fall time	t _f		-	115	172.5	ns
栅极电荷总量 Total Gate Charge	Q _g	V _{DS} =750V ,	-	37	55.5	nC
栅—源电荷 Gate-Source charge	Q _{gs}	I _D =3A	-	6	9	nC
栅—漏电荷 Gate-Drain charge	Q _{gd}	V _{GS} =10V（note 3, 4）	-	22	33	nC
漏—源二极管特性及最大额定值 Drain-Source Diode Characteristics and Maximum Ratings						
正向最大连续电流 Maximum Continuous Drain-Source Diode Forward Current	I _S		-	-	3	A
正向最大脉冲电流 Maximum Pulsed Drain-Source Diode Forward Current	I _{SM}		-	-	12	A
正向导通压降 Forward on voltage	V _{SD}	V _{GS} =0V, I _S =3A	-	-	1.6	V
反向恢复时间 Reverse recovery time	t _{rr}	V _{GS} =0V, I _S =3A di _F /dt=100A/μs (note 3)	-	376	-	ns
反向恢复电荷 Reverse recovery charge	Q _{rr}		-	2.1	-	μC

热特性 THERMAL CHARACTERISTIC

项 目 Parameter	符 号 Symbol	最大值 Value			单 位 Unit
		JCS3AN150 CA/BA/SA	JCS3AN150 AA	JCS3AN150 FA	
结到管壳的热阻 Thermal Resistance, Junction to Case	$R_{th(j-c)}$	0.34	1.8	3.4	$^{\circ}C/W$
结到环境的热阻 Thermal Resistance, Junction to Ambient	$R_{th(j-A)}$	62.5	40	62.5	$^{\circ}C/W$

注释:

- 1: 脉冲宽度由最高结温限制
- 2: $L=100.0mH$, $I_{AS}=3A$, $V_{DD}=50V$, $R_G=25\Omega$, 起始结温 $T_J=25^{\circ}C$
- 3: $I_{SD} \leq 3A$, $di/dt \leq 200A/\mu s$, $V_{DD} \leq BV_{DSS}$, 起始结温 $T_J=25^{\circ}C$
- 4: 脉冲测试: 脉冲宽度 $\leq 300\mu s$, 占空比 $\leq 2\%$
- 5: 基本与工作温度无关

Notes:

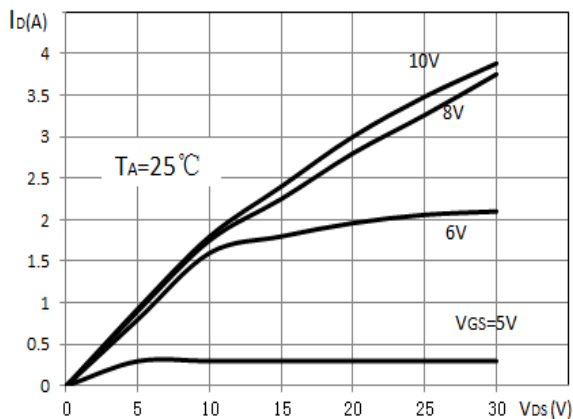
- 1: Pulse width limited by maximum junction temperature
- 2: $L=100.0mH$, $I_{AS}=3A$, $V_{DD}=50V$, $R_G=25\Omega$, Starting $T_J=25^{\circ}C$
- 3: $I_{SD} \leq 3A$, $di/dt \leq 200A/\mu s$, $V_{DD} \leq BV_{DSS}$, Starting $T_J=25^{\circ}C$
- 4: Pulse Test: Pulse Width $\leq 300\mu s$, Duty Cycle $\leq 2\%$
- 5: Essentially independent of operating temperature



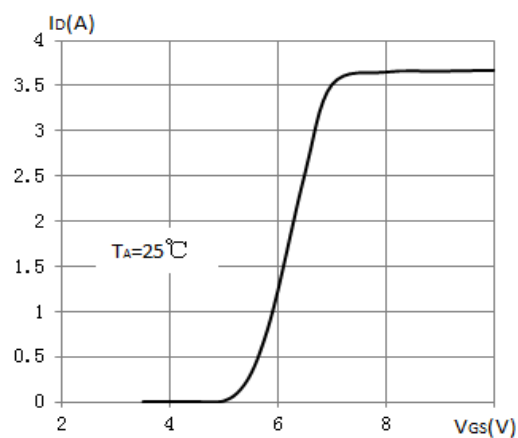


特征曲线 ELECTRICAL CHARACTERISTICS (curves)

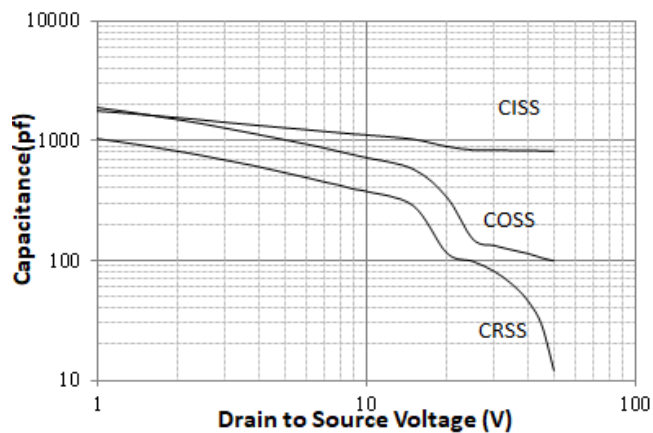
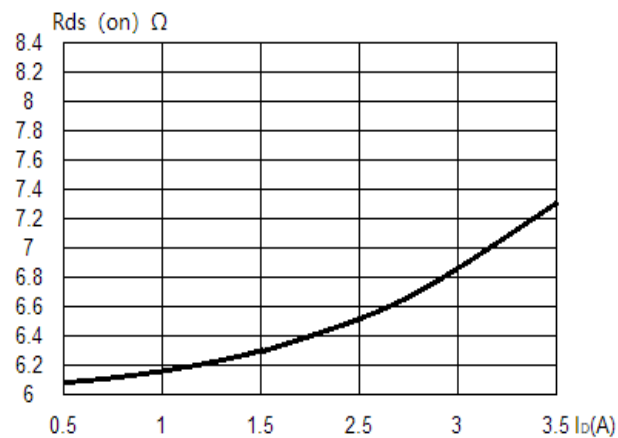
Output characteristics



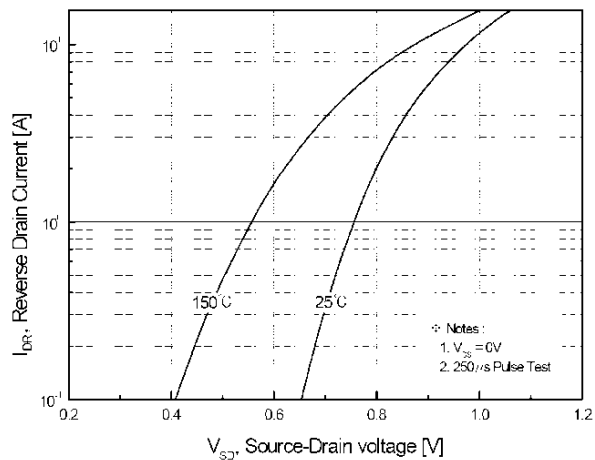
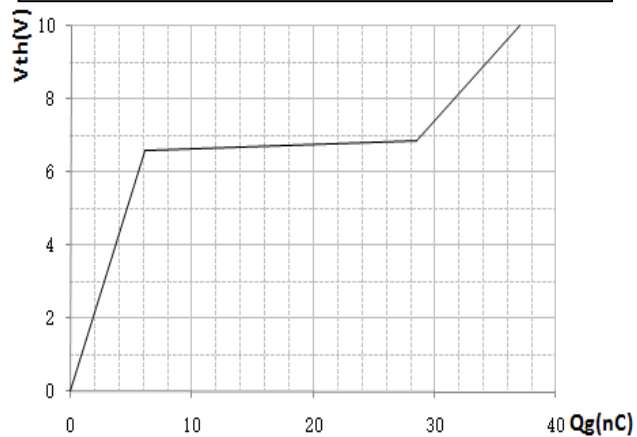
Transfer characteristics



Capacitance Characteristics

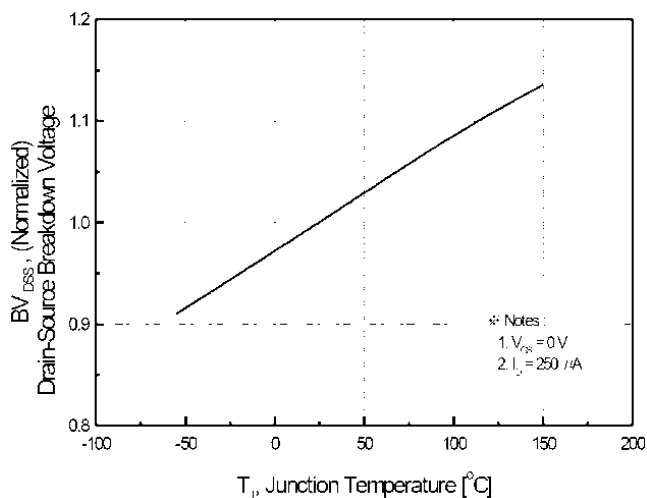
On-Resistance Variation vs. I_D 

Body Diode Forward Voltage Variation vs. Source Current and Temperature

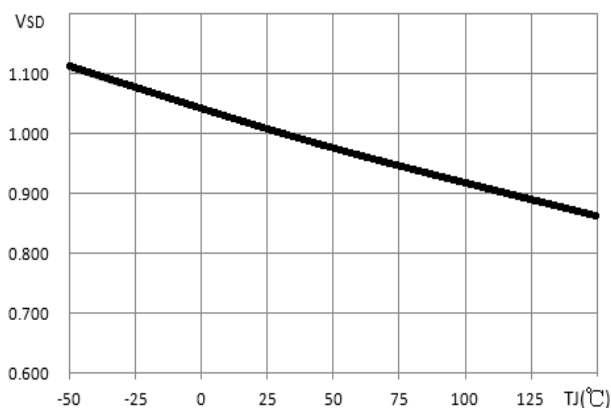
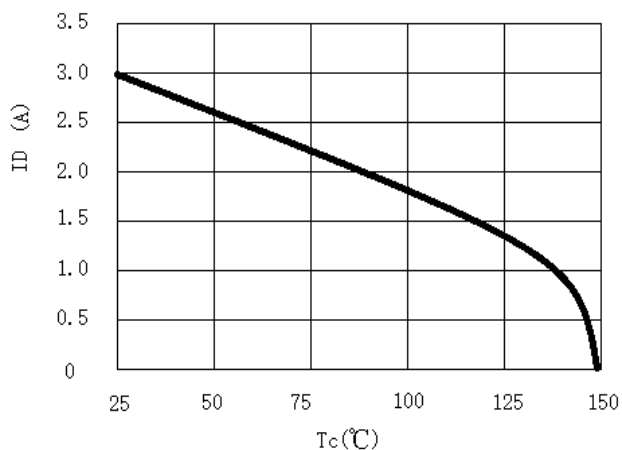
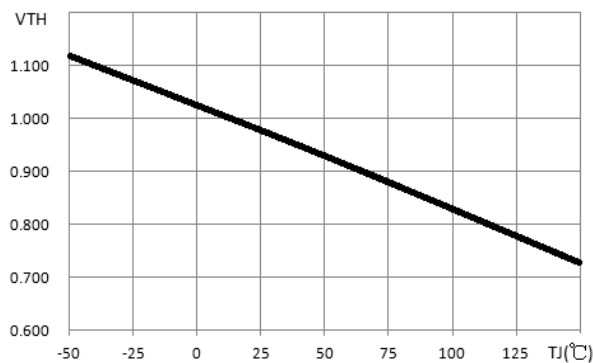
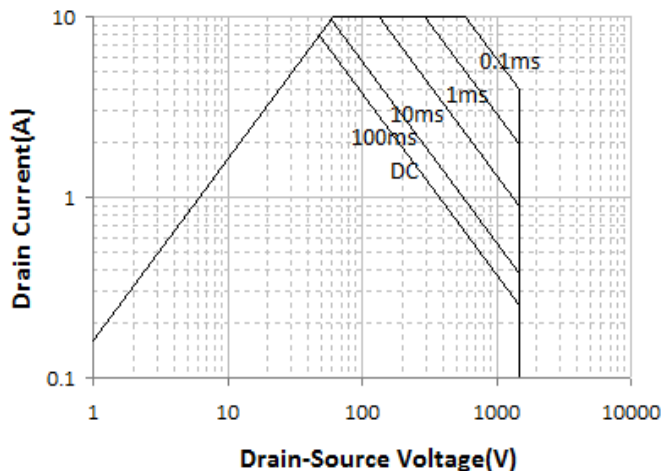
Gate charge vs. V_{th} 



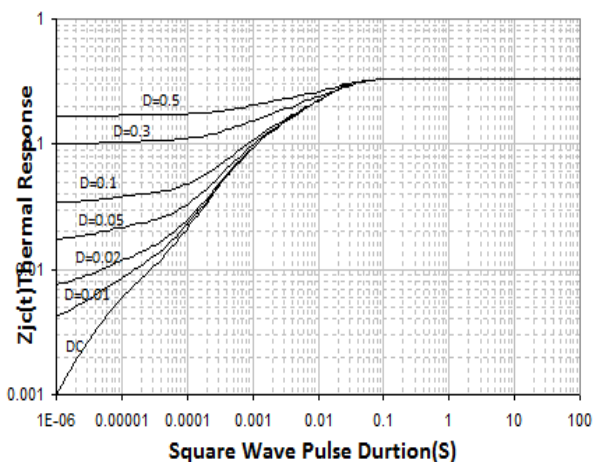
特征曲线 ELECTRICAL CHARACTERISTICS (curves)

Normalized BV_{DSS} vs. temperature

Normalized VSD vs. temperature

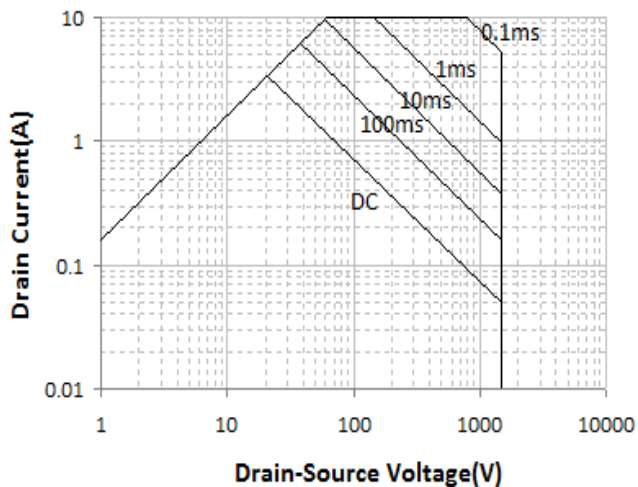
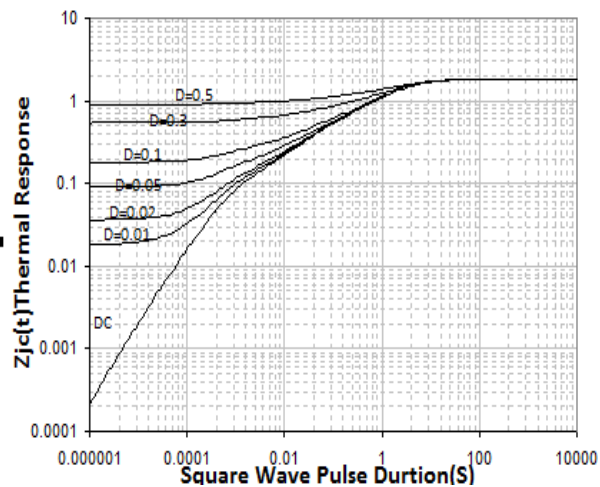
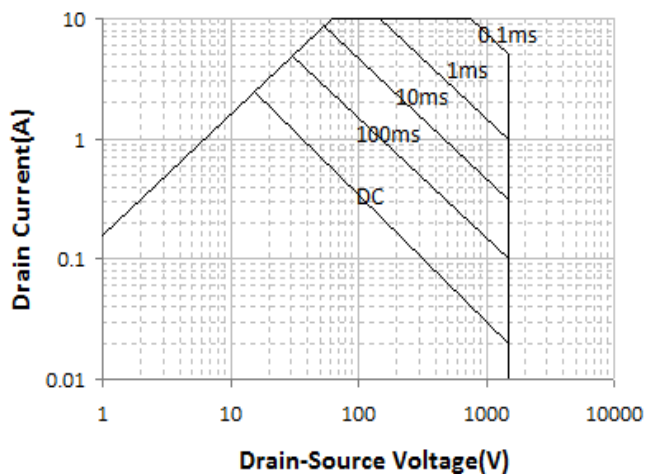
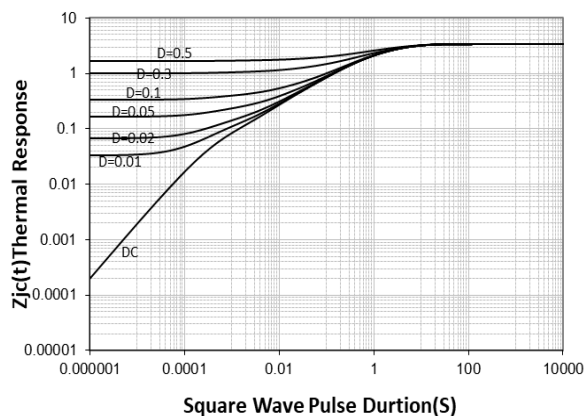
Maximum Drain Current vs.
Case TemperatureNormalized V_{TH} vs. temperatureMaximum Safe Operating Area for
JCS3AN150CA/BA/SA

Thermal impedance for JCS3AN150CA/BA/SA





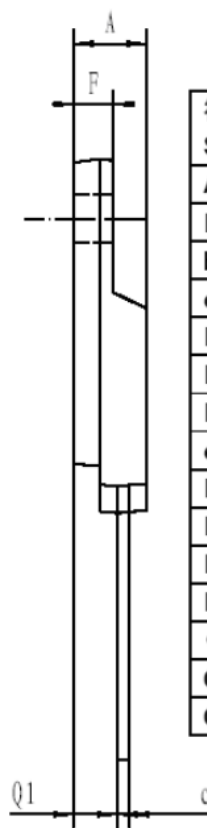
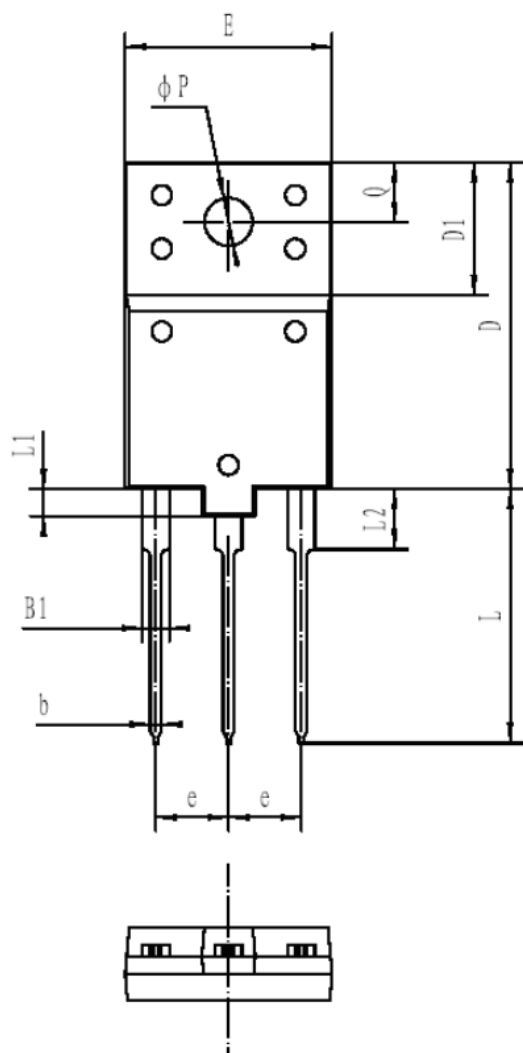
特征曲线 ELECTRICAL CHARACTERISTICS (curves)

Maximum Safe Operating Area for
JCS3AN150AAThermal impedance for
JCS3AN150AAMaximum Safe Operating Area for
JCS3AN150FAThermal impedance for
JCS3AN150FA



TO-3P(H)IS

单位 Unit : mm



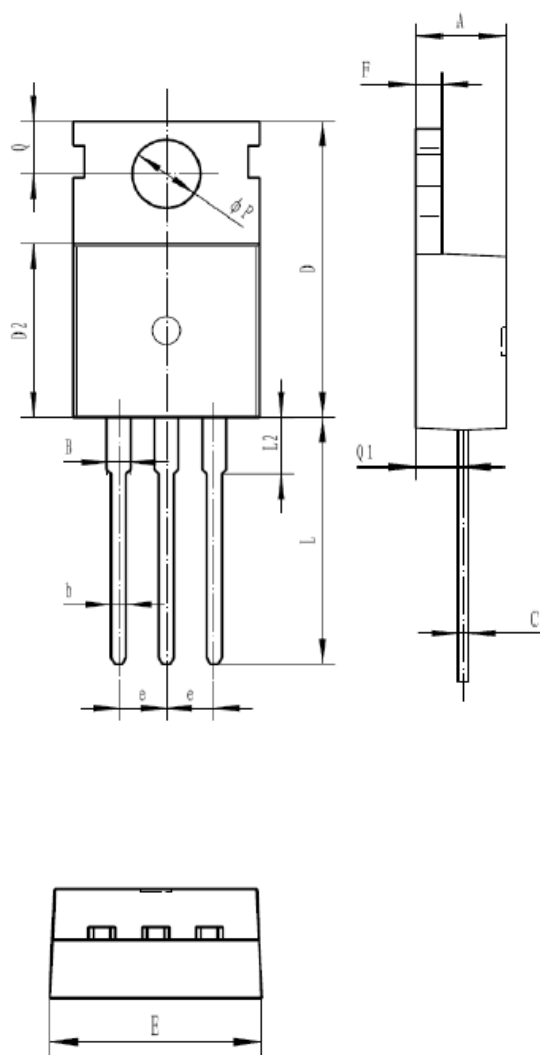
符 号 Symbol	Min	Max
A	5.2	5.8
B1	1.8	2.2
b	0.75	1.05
c	0.8	1.1
D	24.0	25.0
D1	9.8	10.2
E	15.0	16.0
e	5.45 (typ)	
F	2.7	3.3
L	18.5	19.5
L1	1.8	2.2
L2	4.3	4.7
ΦP	3.4	3.8
Q	4.3	4.7
Q1	3.1	3.5





TO-220C

单位 Unit :mm

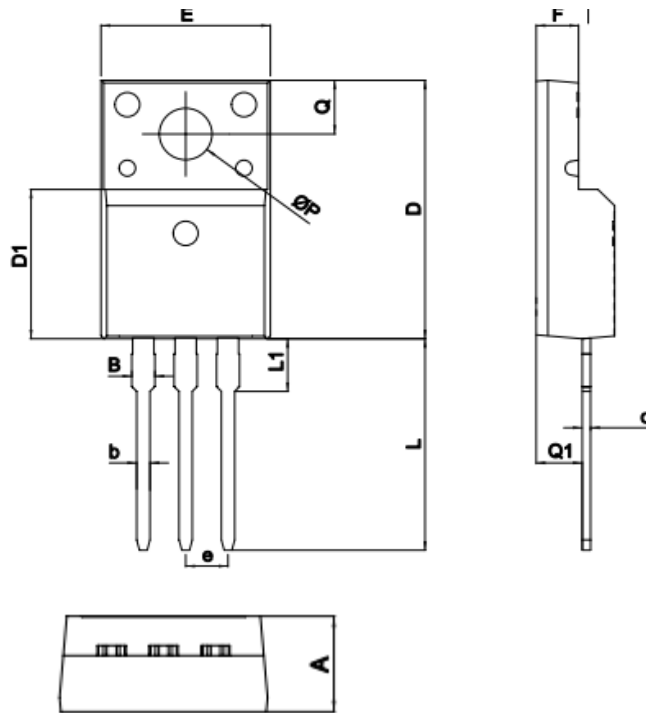


符号 symbol	MIN	MAX
A	4.30	4.70
B	1.22	1.40
b	0.70	0.95
c	0.40	0.65
D	15.20	16.20
D2	9.00	9.40
E	9.70	10.10
e	2.39	2.69
F	1.25	1.40
L	12.60	13.60
L2	2.80	3.20
Q	2.60	3.00
Q1	2.20	2.60
P	3.50	3.80



TO-220MF

单位 Unit : mm

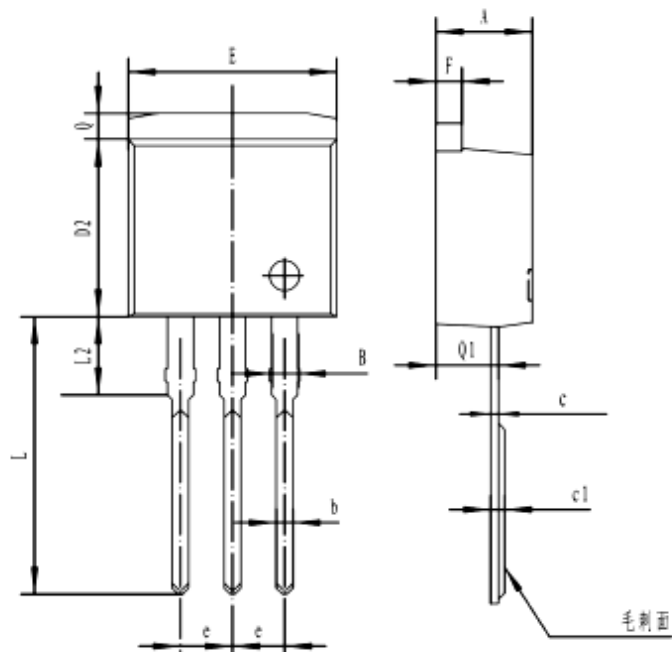


SYMBOL	mm	
	MIN	MAX
A	4.5	4.9
B	1.22	1.47
b	0.7	0.9
c	0.45	0.60
D	15.6	16.1
D1	9.0	9.3
e	2.54TYPE	
E	9.9	10.4
F	2.3	2.8
L	12.6	13.3
L1	3.1	3.4
Q	3.2	3.4
Q1	2.6	2.9
ΦP	3.0	3.5



TO-262

单位 Unit : mm



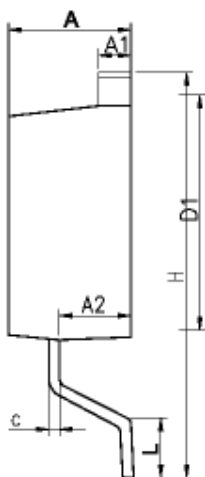
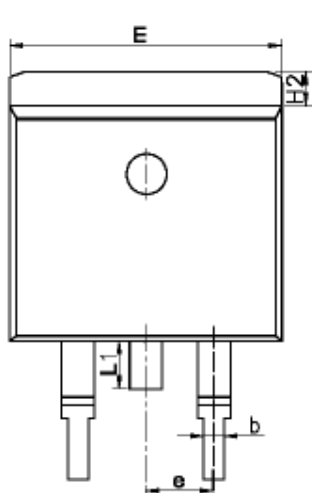
符号 symbol	MIN	MAX
A	4.40	4.90
B	1.10	1.40
b	0.70	0.95
c	0.30	0.60
c1	0.33	0.63
D2	8.20	9.20
E	9.60	10.50
e	2.39	2.69
F	1.20	1.35
L	13.11	14.61
L2	3.55	4.05
Q	1.10	1.40
Q1	2.65	2.85





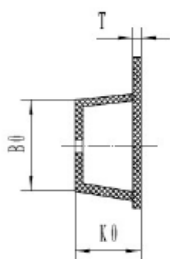
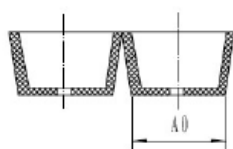
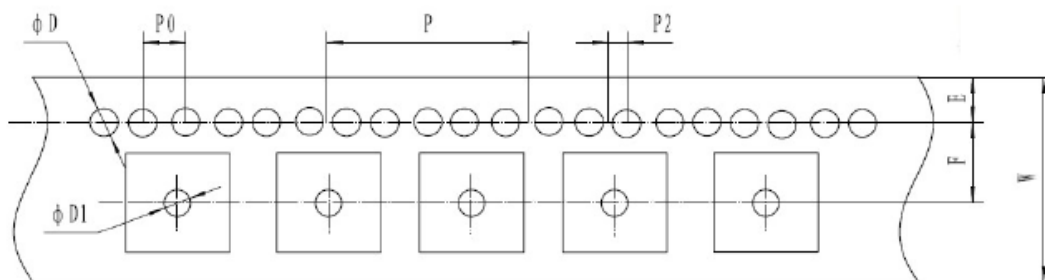
TO-263

单位 Unit : mm



SYMBOL	MM	
	MIN	MAX
A	4.30	4.80
A1	1.12	1.42
A2	2.54	2.84
b	0.67	1.00
c	0.29	0.52
D1	8.40	9.00
E	9.80	10.46
e	2.54BSC	
H	14.00	16.00
H2	1.12	1.45
L	1.50	3.10
L1	1.45	1.70

编带 REEL



产品尺寸规格 (UNIT: mm)				
规格 W	A0	E	F	D
尺寸 24 ± 0.3	10.9 ± 0.1	1.75 ± 0.1	11.5 ± 0.1	$1.5 + 0.1/-0$
规格 D1	P0	P2	P	T
尺寸 $1.5 + 0.1/-0$	4 ± 0.1	2 ± 0.1	16 ± 0.1	0.35 ± 0.05
规格 K0	B0			
尺寸 4.9 ± 0.1	16.0 ± 0.1			





注意事项

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3. 在电路设计时请不要超过器件的绝对最大额定值，否则会影响整机的可靠性。
4. 本说明书如有版本变更不另外告知。

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3. Please do not exceed the absolute maximum ratings of the device when circuit designing.
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