



JCS6AN70E

主要参数MAIN CHARACTERISTICS

I_D	6A
V_{DSS}	700V
$R_{dson-max}$ ($V_{GS}=10V$)	1.70 Ω
Q_g-Typ	21.1nC

用途

- 高频开关电源
- 电子镇流器
- LED 电源

产品特性

- 低栅极电荷
- 低 C_{RSS} (典型值 4.0pF)
- 开关速度快
- 产品全部经过雪崩测试
- 高抗 dv/dt 能力
- RoHS 产品

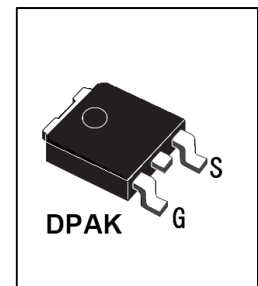
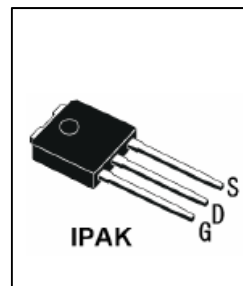
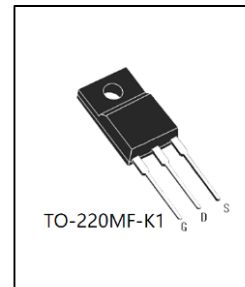
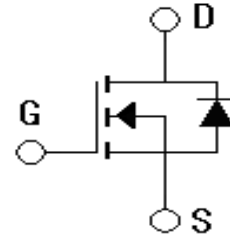
APPLICATIONS

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

FEATURES

- Low gate charge
- Low C_{RSS} (typical 4.0pF)
- 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		
N/A	JCS6AN70VE-V-BR	N/A	N/A	JCS6AN70V	IPAK
N/A	JCS6AN70RE-R-BR	N/A	JCS6AN70RE-R-AR	JCS6AN70R	DPAK
JCS6AN70FE-F1-B	JCS6AN70FE-F1-BR	N/A	N/A	JCS6AN70F	TO-220MF-K1

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
		JCS6AN70VE/RE	JCS6AN70FE	
最高漏极-源极直流电压 Drain-Source Voltage	V_{DSS}	700	700	V
连续漏极电流 Drain Current -continuous	I_D $T=25^{\circ}\text{C}$ $T=100^{\circ}\text{C}$	6.0	6.0*	A
		3.6	3.6*	A
最大脉冲漏极电流 (注1) Drain Current - pulse (note 1)	I_{DM}	24	24*	A
最高栅源电压 Gate-Source Voltage	V_{GSS}	± 30		V
单脉冲雪崩能量 (注2) Single Pulsed Avalanche Energy (note 2)	E_{AS}	232.6		mJ
雪崩电流 (注1) Avalanche Current (note 1)	I_{AR}	6		A
重复雪崩能量 (注1) Repetitive Avalanche Energy (note 1)	E_{AR}	23.1		mJ
二极管反向恢复最大电压变化速率 (注3) Peak Diode Recovery dv/dt (note 3)	dv/dt	5.5		V/ns
耗散功率 Power Dissipation	P_D $T_C=25^{\circ}\text{C}$ -Derate above 25°C	231	36.7	W
		1.84	1.47	W/ $^{\circ}\text{C}$
最高结温及存储温度 Operating and Storage Temperature Range	T_J, T_{STG}	-55~+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 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
关态特性 Off –Characteristics						
漏—源击穿电压 Drain-Source Voltage	BV_{DSS}	$I_D=250\mu A, V_{GS}=0V$	700	-	-	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°C	-	0.7	-	V/°C
零栅压下漏极漏电流 Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=700V, V_{GS}=0V, T_C=25^\circ C$	-	-	1.0	μA
		$V_{DS}=560V, V_{GS}=0V, T_C=125^\circ C$	-	-	100	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	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D=250\mu A$	2.0	-	4.0	V
静态导通电阻 Static Drain-Source On-Resistance	$R_{DS(ON)}$	$V_{GS} = 10V, I_D=3A$	-	1.38	1.7	Ω
正向跨导 Forward Transconductance	g_{fs}	$V_{DS} = 40V, I_D=6.0A$ (note 4)	-	10.9	-	S
动态特性 Dynamic Characteristics						
输入电容 Input capacitance	C_{iss}	$V_{DS}=25V,$ $V_{GS}=0V,$ $f=1.0MHz$	820	1104	1436	pF
输出电容 Output capacitance	C_{oss}		35	70	155	pF
反向传输电容 Reverse transfer capacitance	C_{rss}		1.0	4.0	17.8	pF





电特性 ELECTRICAL CHARACTERISTICS

开关特性 Switching Characteristics						
延迟时间 Turn-On delay time	$t_{d(on)}$	VDD=350V, ID=6A, RG=25Ω (note 4, 5)	-	19	47.5	ns
上升时间 Turn-On rise time	t_r		-	28.4	78	ns
延迟时间 Turn-Off delay time	$t_{d(off)}$		-	60.8	105	ns
下降时间 Turn-Off Fall time	t_f		-	40.6	97	ns
栅极电荷总量 Total Gate Charge	Q_g	VDS =560V , ID=6A VGS =10V (note 4, 5)		21.1	34	nC
栅-源电荷 Gate-Source charge	Q_{gs}			5.38	-	nC
栅-漏电荷 Gate-Drain charge	Q_{gd}			6.21	-	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	-	-	6	A
正向最大脉冲电流 Maximum Pulsed Drain-Source Diode Forward Current		I_{SM}	-	-	24	A
正向压降 Drain-Source Diode Forward Voltage	V_{SD}	$V_{GS}=0V, I_S=6.0A$	-	-	1.4	V
反向恢复时间 Reverse recovery time	t_{rr}	$V_{GS}=0V, I_S=6.0A$ $di_f/dt=100A/\mu s$ (note 4)	-	384	-	ns
反向恢复电荷 Reverse recovery charge	Q_{rr}		-	2.16	-	μC

热特性 THERMAL CHARACTERISTIC

项 目 Parameter	符 号 Symbol	最大 Max		单 位 Unit
		JCS6AN70VE/RE	JCS6AN70FE	
结到管壳的热阻 Thermal Resistance, Junction to Case	$R_{th(j-c)}$	0.541	3.4	$^{\circ}C/W$
结到环境的热阻 Thermal Resistance, Junction to Ambient	$R_{th(j-A)}$	62.5	48	$^{\circ}C/W$

注释:

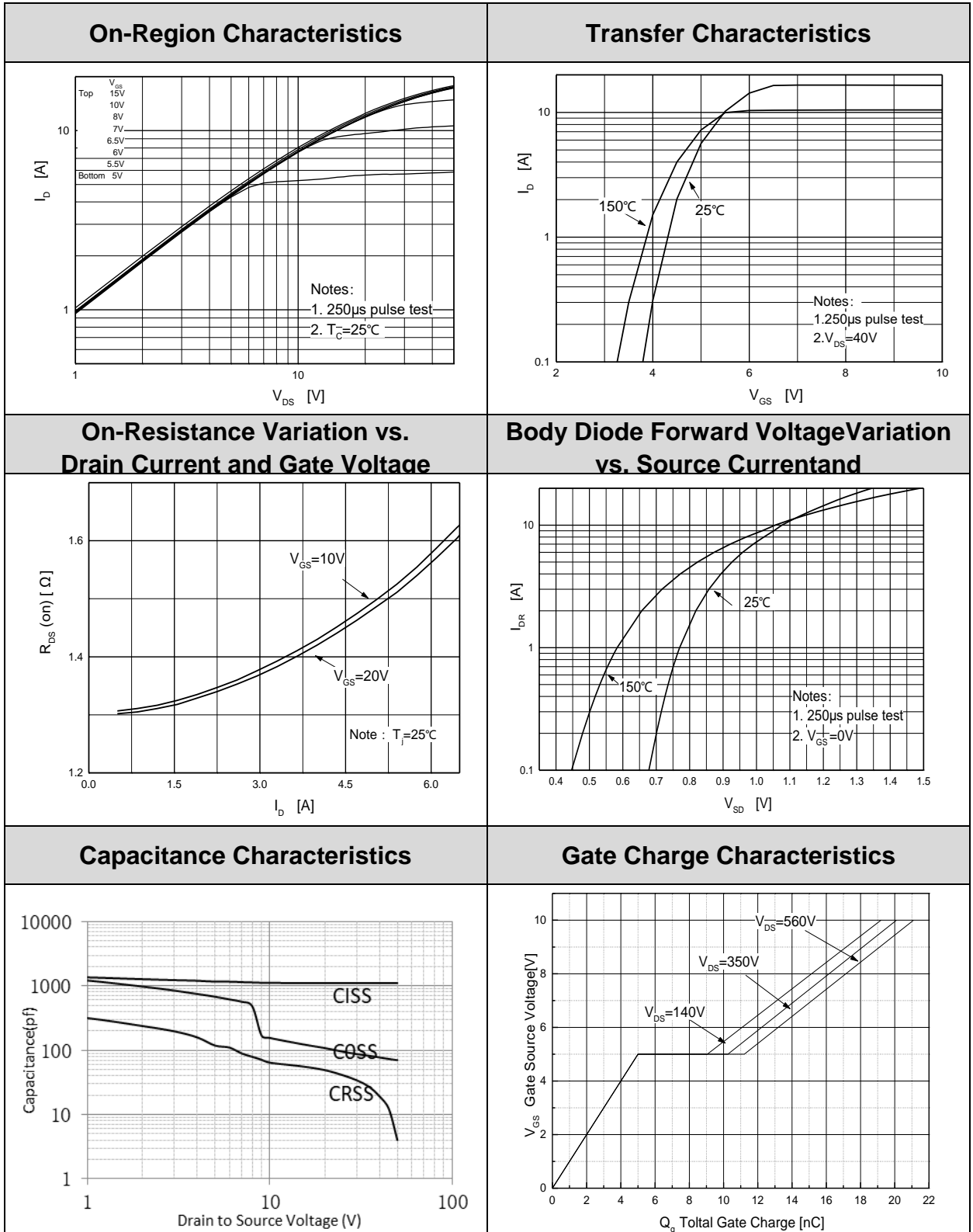
- 1: 脉冲宽度由最高结温限制
- 2: L=12mH, IAS=6A, VDD=50V, RG=25Ω, 起始结温 TJ=25°C
- 3: ISD ≤6A, di/dt ≤300A/μs, VDD≤BV_{DSS}, 起始结温 TJ=25°C
- 4: 脉冲测试: 脉冲宽度≤300μs, 占空比≤2%
- 5: 基本与工作温度无关

Notes:

- 1: Pulse width limited by maximum junction temperature
- 2: L=12mH, IAS=6A, VDD=50V, RG=25Ω, Starting TJ=25°C
- 3: ISD ≤6A, di/dt ≤300A/μs, VDD≤BV_{DSS}, Starting TJ=25°C
- 4: Pulse Test: Pulse Width ≤300μs, Duty Cycles≤2%
- 5: Essentially independent of operating temperature

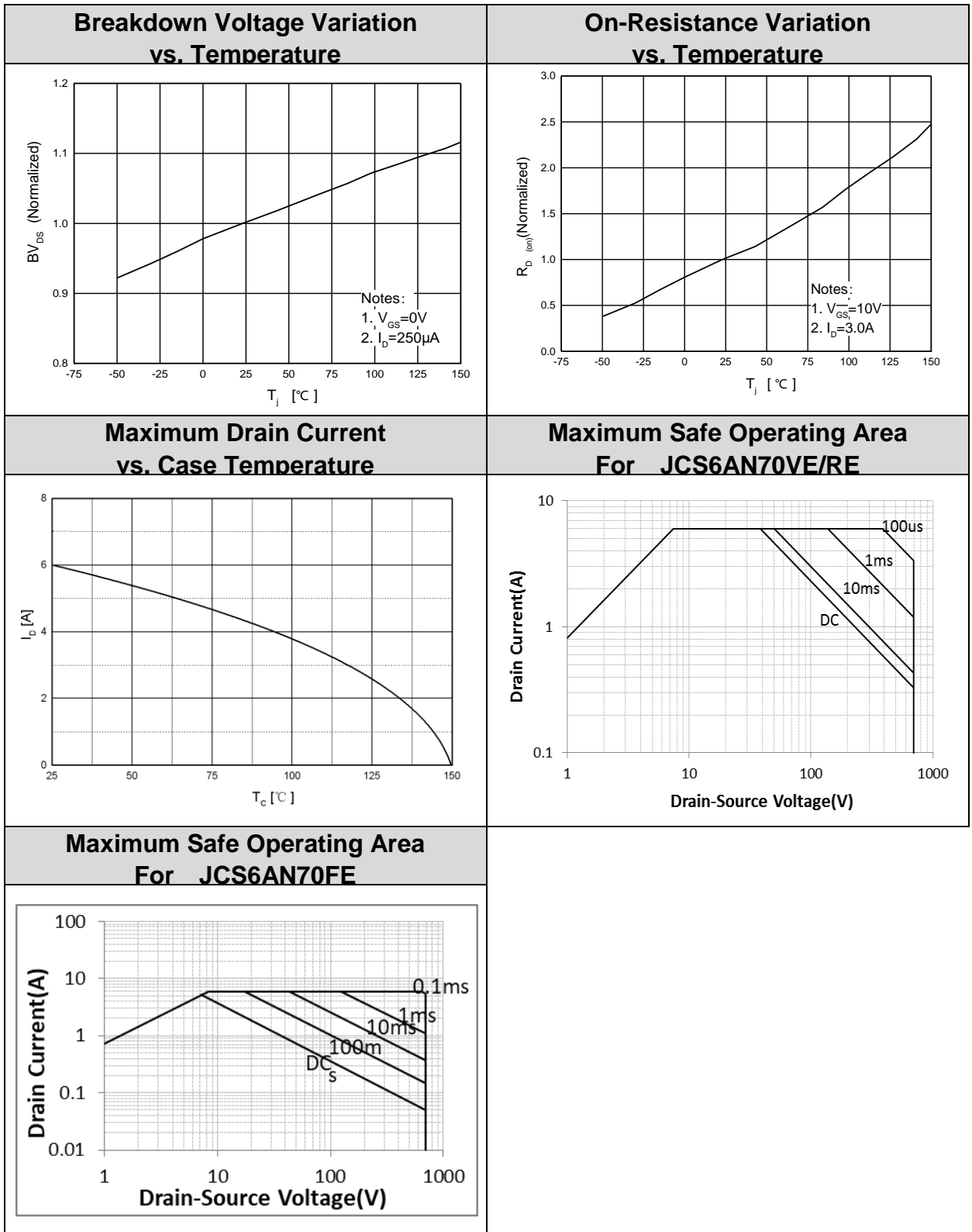


特征曲线ELECTRICAL CHARACTERISTICS (curves)

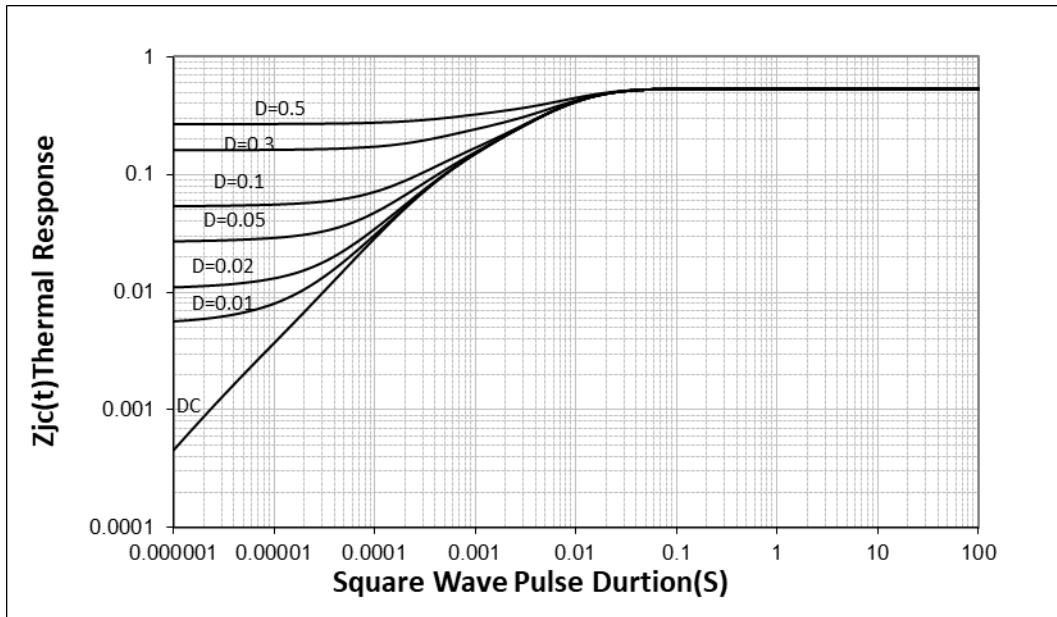




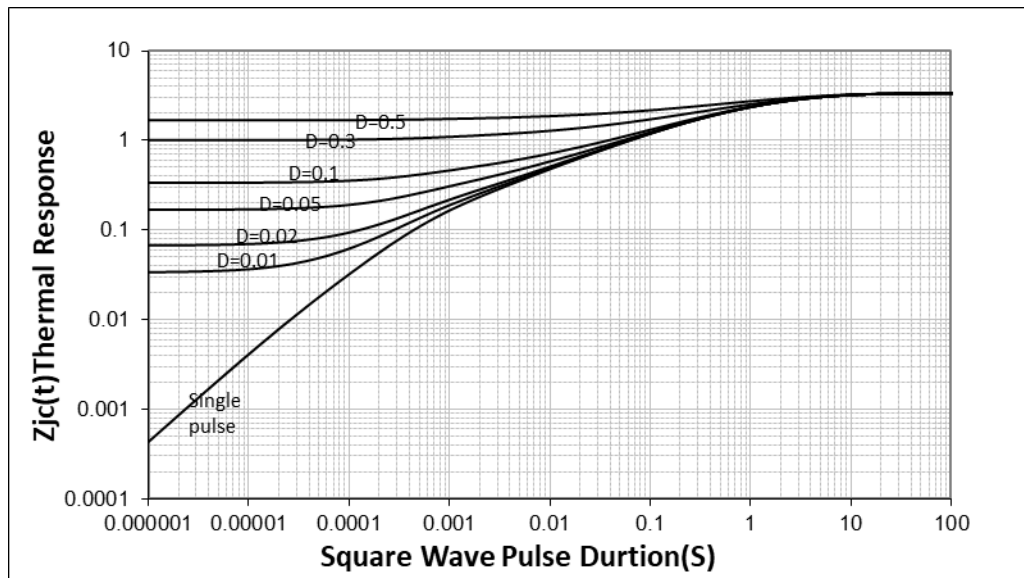
特征曲线ELECTRICAL CHARACTERISTICS (curves)



**Transient Thermal Response Curve
For JCS6AN70VE/RE**



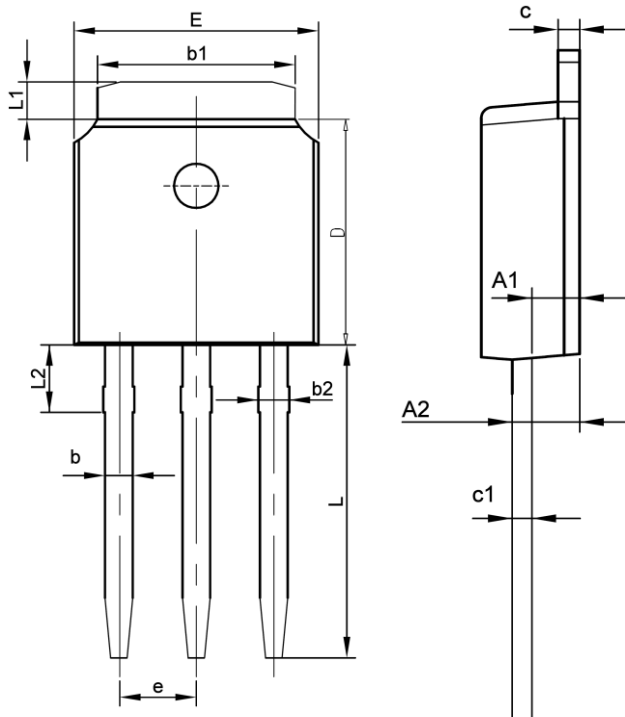
**Transient Thermal Response Curve
For JCS6AN70FE**



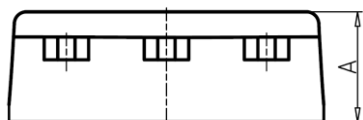
外形尺寸 PACKAGE MECHANICAL DATA

IPAK

单位 Unit: mm



SYMBOL	MM	
	MIN	MAX
A	2.10	2.50
A1	0.87	1.27
A2	1.37	1.77
b	0.63	0.93
b1	5.13	5.53
b2	0.67	1.00
c	0.40	0.60
c1	0.40	0.60
D	5.80	6.40
E	6.30	6.90
L	9.10	9.70
e	2.286BSC	
L1	0.82	1.22
L2	0.90	1.20

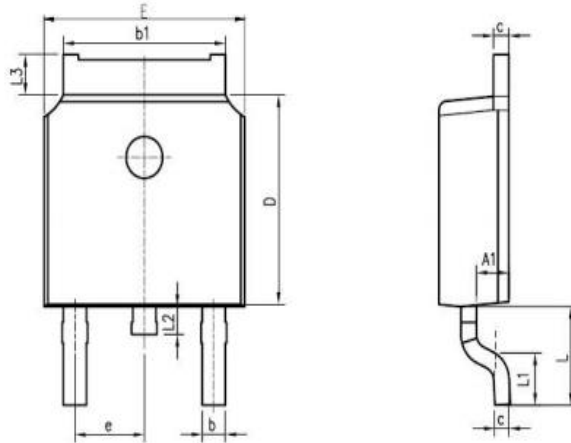




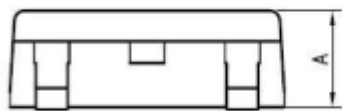
外形尺寸 PACKAGE MECHANICAL DATA

DPAK

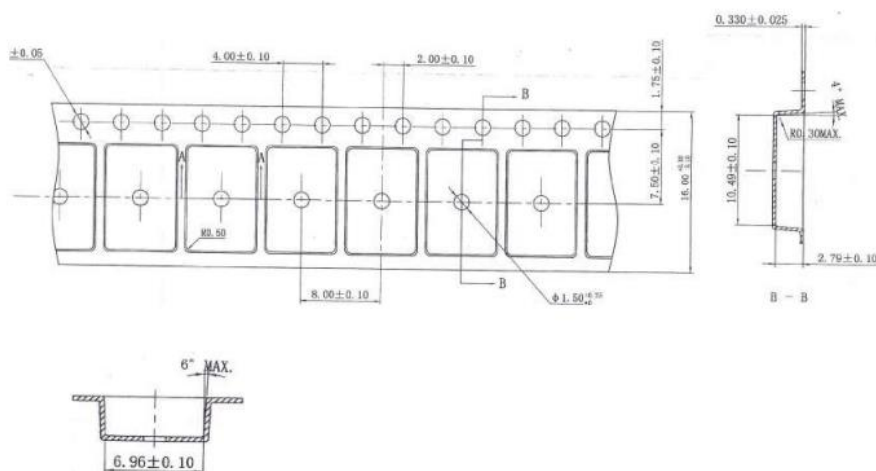
单位 Unit: mm



SYMBOL	mm	
	MIN	MAX
A	2.10	2.50
A1	0.97	1.17
b	0.63	0.93
b1	5.13	5.53
c	0.40	0.60
D	5.80	6.40
E	6.30	6.90
e	2.286BSC	
L	2.50	3.30
L1	1.20	1.80
L2	0.60	1.00
L3	0.85	1.30



编带 REEL

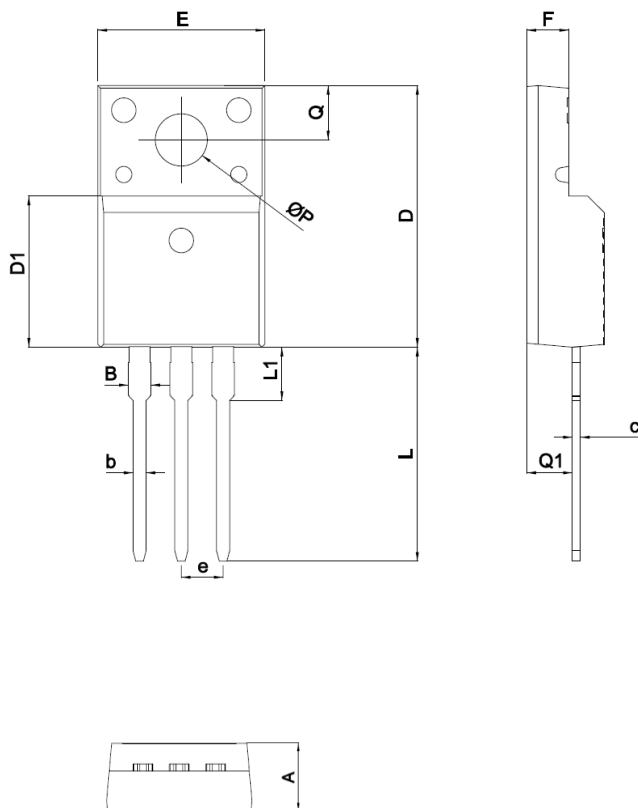




外形尺寸 PACKAGE MECHANICAL DATA

TO-220MF-K1

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





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