



JCS86N25T-科士达

主要参数 MAIN CHARACTERISTICS

I_D	86 A
V_{DS}	250 V
$R_{ds(on)}$ ($V_{GS}=10V$) -MAX	50m Ω
Q_g -Typ	123 nC

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 power supplies

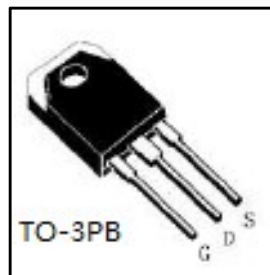
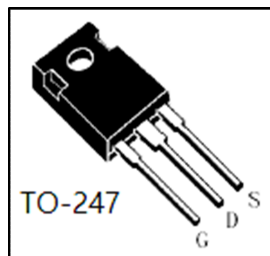
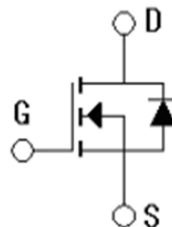
产品特性

- 低栅极电荷
- 低 C_{rss} (典型值 78pF)
- 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 78pF)
- 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		
JCS86N25WT-GE-B	JCS86N25WT-GE-BR	N/A	N/A	JCS86N25WT	TO-247
JCS86N25ABT-GD-B	JCS86N25ABT-GD-BR	N/A	N/A	JCS86N25ABT	TO-3PB



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
		JCS86N25WT/ABT	
最高漏极-源极直流电压 Drain-Source Voltage	V_{DSS}	250	V
连续漏极电流 Drain Current -continuous	I_{D} $T=25^{\circ}\text{C}$ $T=100^{\circ}\text{C}$	86	A
		52	A
最大脉冲漏极电流 (注 1) Drain Current - pulse (note 1)	I_{DM}	344	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}	2300	mJ
雪崩电流 (注 1) Avalanche Current (note 1)	I_{AR}	86	A
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	5.0	V/ns
耗散功率($T_c=25^{\circ}\text{C}$) Power Dissipation	P_{D} $T_c=25^{\circ}\text{C}$ -Derate above 25°C	750	W
		6	W
最高结温及存储温度 Operating and Storage Temperature Range	$T_{\text{J}}, T_{\text{STG}}$	$-55 \sim +150$	$^{\circ}\text{C}$

*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}	$I_D=250\mu A, V_{GS}=0V$	250	-	-	V
击穿电压温度特性 Breakdown Voltage Temperature Coefficient	$BV_{DSS}/\Delta T_J$	$I_D=250\mu A$, referenced to $25^\circ C$	-	0.25		V/ $^\circ C$
零栅压下漏极漏电流 Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=250V, V_{GS}=0V,$ $T_C=25^\circ C$	-	-	1	μA
		$V_{DS}=200V, T_C=125^\circ C$	-	-	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	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	3.0	-	4.5	V
静态导通电阻 Static Drain-Source On-Resistance	$R_{DS(ON)}$	$V_{GS}=10V, I_D=30A$	-	37	50	m Ω
正向跨导 Forward Transconductance	g_{fs}	$V_{DS}=40V, I_D=69A$ (note 4)	-	52.1	-	S
动态特性 Dynamic Characteristics						
输入电容 Input capacitance	C_{iss}	$V_{DS}=25V,$ $V_{GS}=0V,$ $f=1.0MHz$	-	4401		pF
输出电容 Output capacitance	C_{oss}		-	734		pF
反向传输电容 Reverse transfer capacitance	C_{rss}		-	78		pF





电特性 ELECTRICAL CHARACTERISTICS

开关特性 Switching Characteristics						
延迟时间 Turn-On delay time	t _{d(on)}	V _{DD} =125V,I _D =69A,R _G =25Ω, V _{GS} =10V (note 4, 5)	-	76.6		ns
上升时间 Turn-On rise time	t _r		-	120.6		ns
延迟时间 Turn-Off delay time	t _{d(off)}		-	239		ns
下降时间 Turn-Off Fall time	t _f		-	184		ns
栅极电荷总量 Total Gate Charge	Q _g	V _{DS} =200V , I _D =69A V _{GS} =10V (note 4, 5)	-	123		nC
栅—源电荷 Gate-Source charge	Q _{gs}		-	29.4		nC
栅—漏电荷 Gate-Drain charge	Q _{gd}		-	71.25		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		-	-	86	A
正向最大脉冲电流 Maximum Pulsed Drain-Source Diode Forward Current	I _{SM}		-	-	344	A
正向压降 Drain-Source Diode Forward Voltage	V _{SD}	V _{GS} =0V, I _S =69.0A	-	-	1.4	V
反向恢复电流 Reverse Recovery Current	I _{RRM}	V _{GS} =0V, I _S =69A di _F /dt=100A/μs (note 4)		23.7		A
反向恢复时间 Reverse recovery time	t _{rr}		-	267.2	-	ns
反向恢复电荷 Reverse recovery charge	Q _{rr}		-	3204	-	nC

热特性 THERMAL CHARACTERISTIC

项 目 Parameter	符 号 Symbol	最大 Max	单位 Unit
		JCS86N25WT/ABT	
结到管壳的热阻 Thermal Resistance, Junction to Case	$R_{th(j-c)}$	0.165	$^{\circ}C/W$
结到环境的热阻 Thermal Resistance, Junction to Ambient	$R_{th(j-A)}$	62.5	$^{\circ}C/W$

注释:

- 1: 脉冲宽度由最高结温限制
- 2: $L=0.8mH, I_{AS}=69A, V_{DD}=50V, R_G=25\Omega$, 起始结温 $T_J=25^{\circ}C$
- 3: $I_{SD}\leq 69A, dv/dt\leq 200A/\mu s, V_{DD}\leq BVDSS$, 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

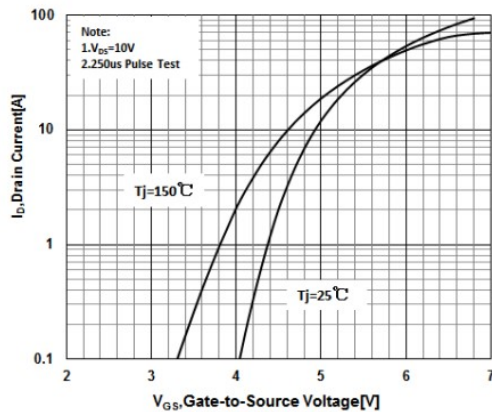
Notes:

- 1: Pulse width limited by maximum junction temperature
- 2: $L=0.8mH, I_{AS}=69A, V_{DD}=50V, R_G=25\Omega$, Starting $T_J=25^{\circ}C$
- 3: $I_{SD}\leq 69A, dv/dt\leq 100A/\mu s, V_{DD}\leq BVDSS$, 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

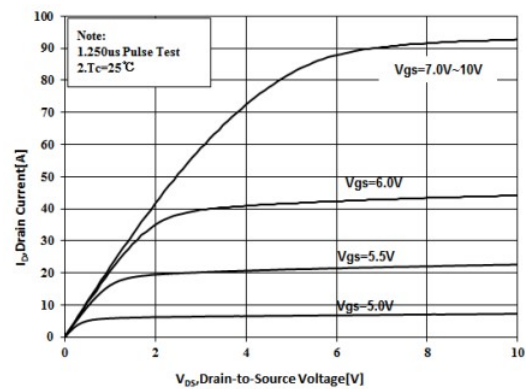
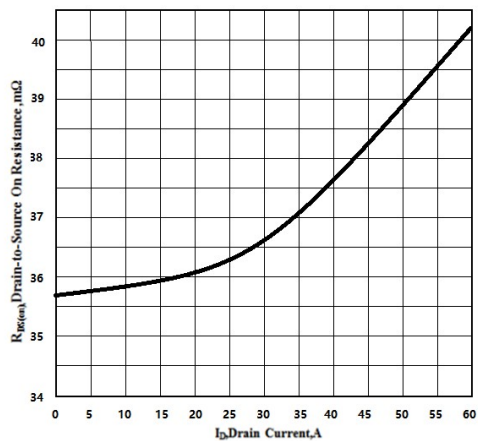
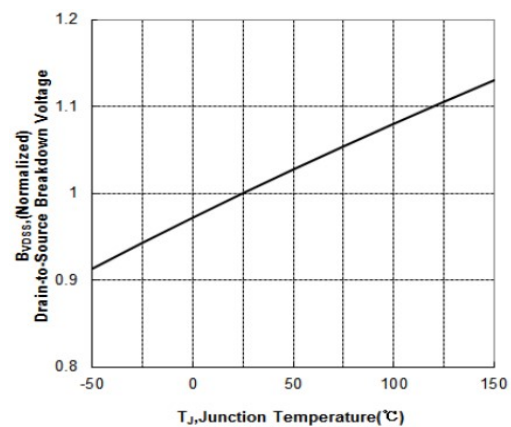
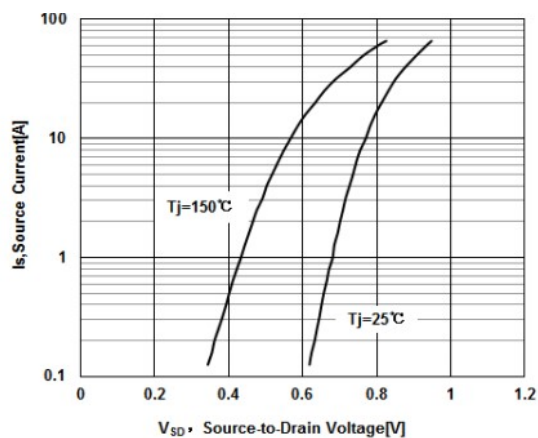




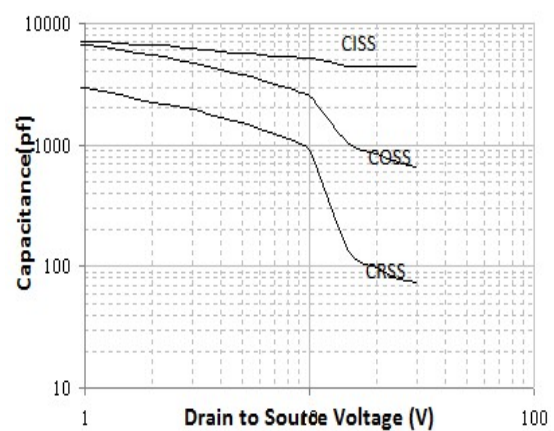
On-Region Characteristics



Transfer Characteristics

On-Resistance Variation vs.
Drain Current and Gate VoltageBreakdown Voltage Variation
vs. TemperatureBody Diode Forward Voltage Variation
vs. Source Current and Temperature

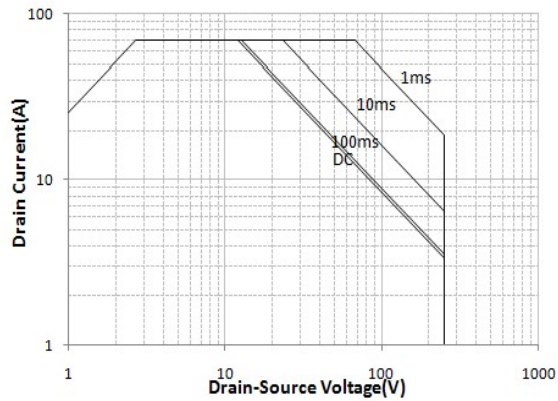
Capacitance Characteristics



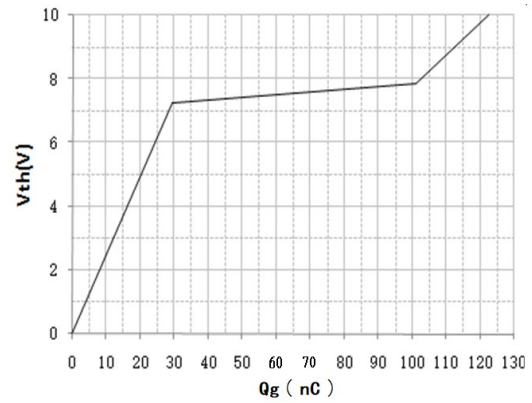


特征曲线 ELECTRICAL CHARACTERISTICS (curves)

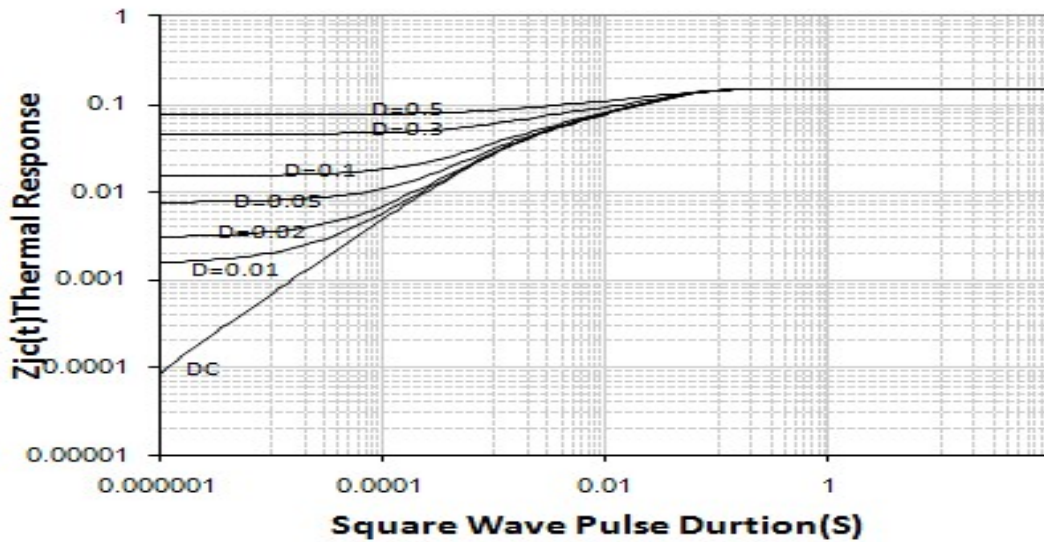
Maximum safe operating area



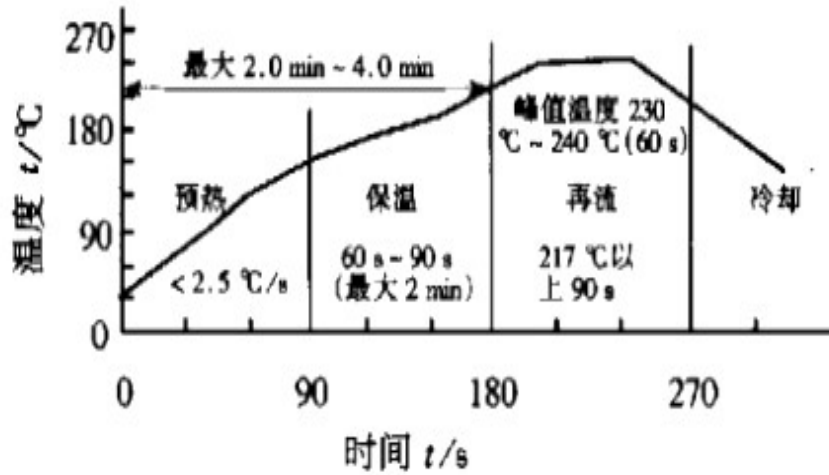
Gate Charge Characteristics



Transient Thermal Response Curve

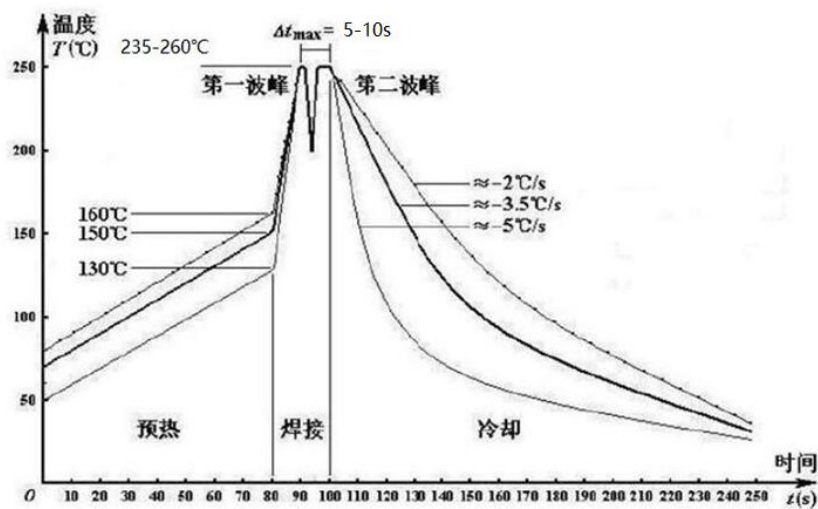


回流焊建议曲线



波峰焊建议曲线

wave soldering



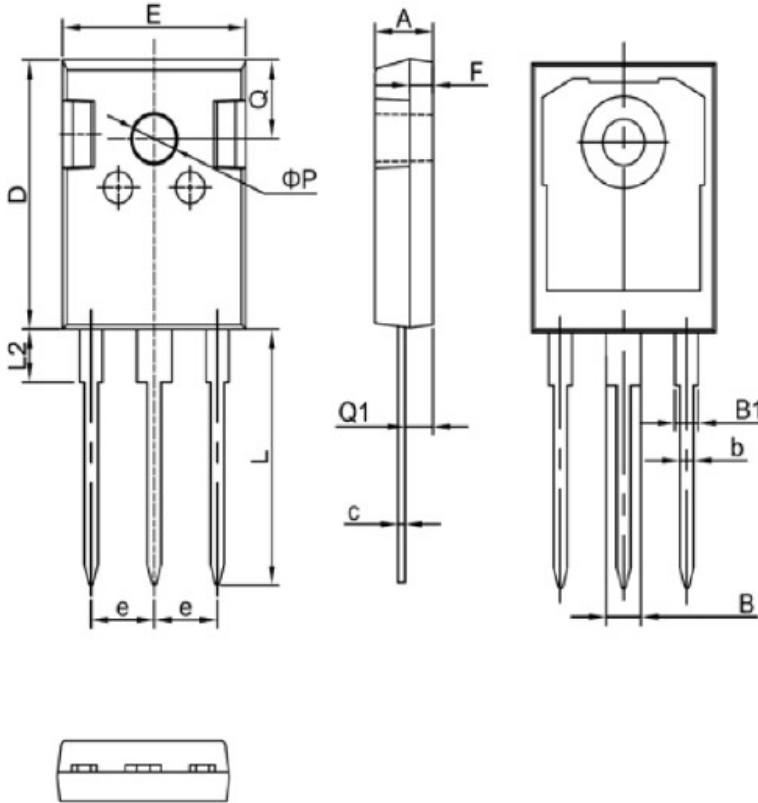
产品工装扭力与塑封料阻燃等级

封装外型	建议工装扭力	塑封料阻燃等级
TO-247/TO-3PB	6-8Kgf.cm, 且应保证背面散热片平整。	UL94 V-0

外形尺寸 PACKAGE MECHANICAL DATA

TO-247

单位 Unit: mm



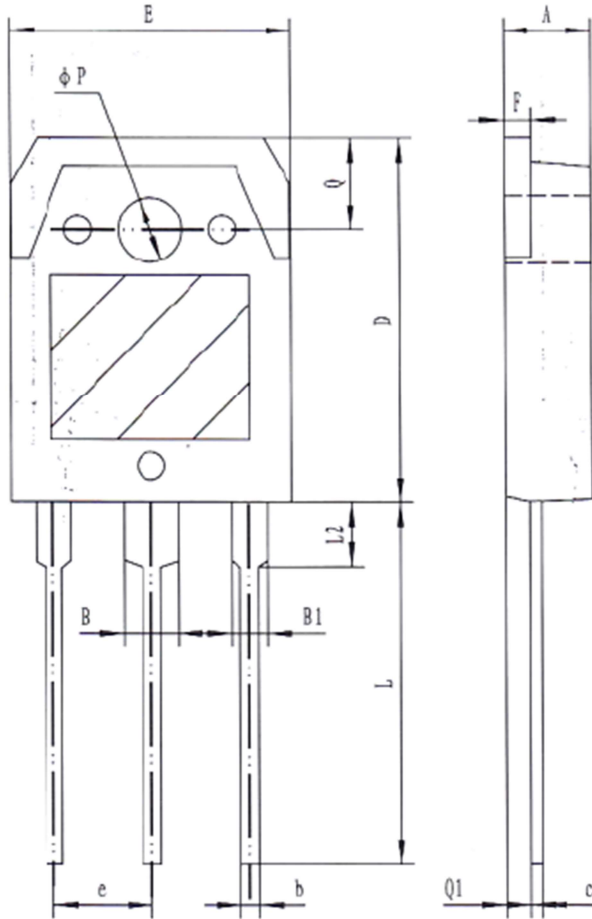
符号 symbol	MIN	MAX
A	4.90	5.10
B	2.95	3.35
B1	1.95	2.35
b	1.15	1.35
c	0.50	0.70
D	20.90	21.10
E	15.70	15.90
e	5.34	5.54
F	1.90	2.10
L	19.40	20.40
L2	4.03	4.23
Q	6.00	6.40
Q1	2.30	2.50
P	3.50	3.70



外形尺寸 PACKAGE MECHANICAL DATA

TO-3PB

单位 Unit: mm



符号 symbol	MIN	MAX
A	4.60	5.00
B	2.90	3.20
B1	1.90	2.20
b	0.90	1.10
c	0.50	0.70
D	19.40	20.40
E	15.40	15.80
e	5.45(TYP)	
F	1.40	1.60
L	19.50	20.50
L2	3.30	3.70
Q	4.90	5.10
Q1	1.30	1.50
P	3.10	3.50



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4. 本说明书如有版本变更不另外告知。

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