



JCS86N25T

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

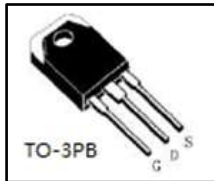
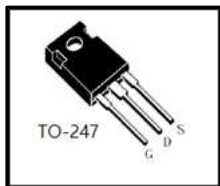
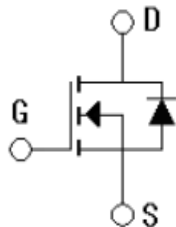
产品特性

- 低栅极电荷
- 低 Cr_{ss} (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 Cr_{ss} (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
JCS86N25GCT-GC-B	JCS86N25GCT-GC-BR	N/A	N/A	JCS86N25GCT	TO-3PLT





JCS86N25T

绝对最大额定值 ABSOLUTE RATINGS (Tc=25℃)

项 目 Parameter	符 号 Symbol	数 值 Value		单 位 Unit
		JCS86N25WT/ABT	JCS86N25GCT	
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℃ T=100℃	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(Tc=25℃) Power Dissipation	P_D Tc =25℃ -Derate above 25℃	750	788	W
		6	6.3	W
最高结温及存储温度 Operating and Storage Temperature Range	T_J, T_{STG}	-55~+150		℃

*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}	$V_{DS}=250V, V_{GS}=0V,$ $T_C=25^\circ C$	-	-	10	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	$t_{d(on)}$	$V_{DD}=125V, I_D=69A, R_G=25\Omega, V_{GS}=10V$ (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	$V_{DS}=200V,$	-	123		nC
栅-源电荷 Gate-Source charge	Q_{gs}	$I_D=69A$	-	29.4		nC
栅-漏电荷 Gate-Drain charge	Q_{gd}	$V_{GS}=10V$ (note 4, 5)	-	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}	$V_{GS}=0V, I_S=69A$ $di/dt=100A/\mu s$ (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	JCS86N25GCT	
结到管壳的热阻 Thermal Resistance, Junction to Case	$R_{th(j-c)}$	0.165	0.157	$^{\circ}C/W$
结到环境的热阻 Thermal Resistance, Junction to Ambient	$R_{th(j-A)}$	62.5	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: $I_{SD}\leq 69A, di/dt\leq 200A/\mu s, V_{DD}\leq BV_{DSS}$, 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

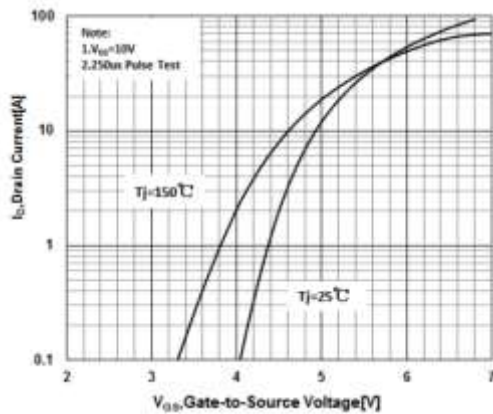
Notes:

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

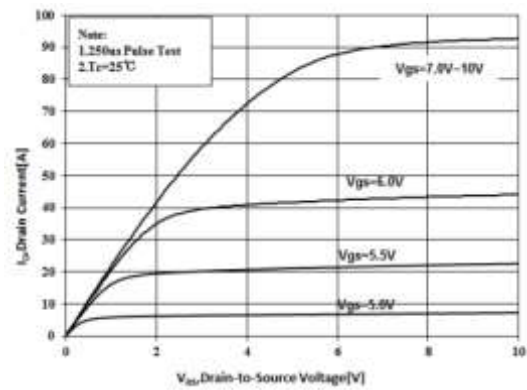
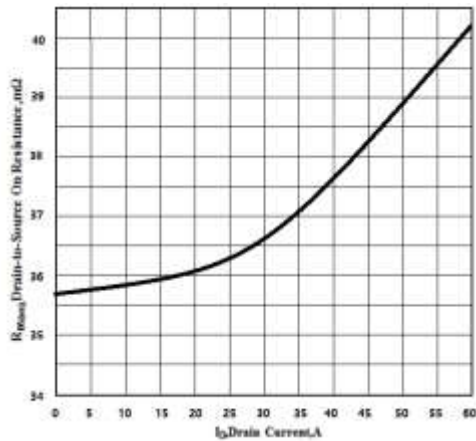




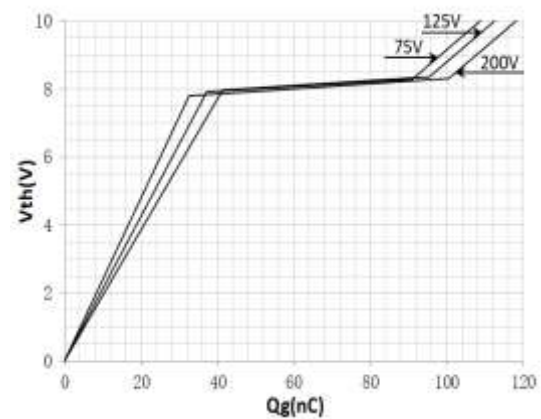
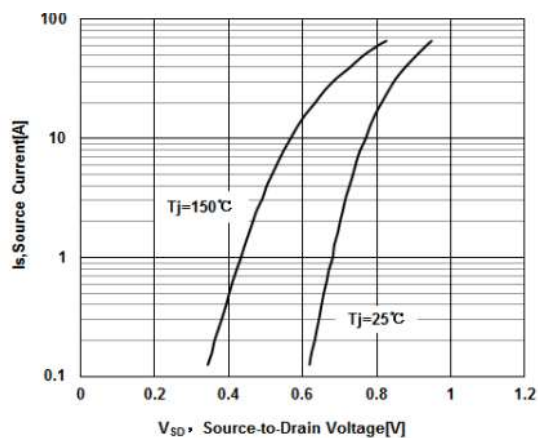
On-Region Characteristics



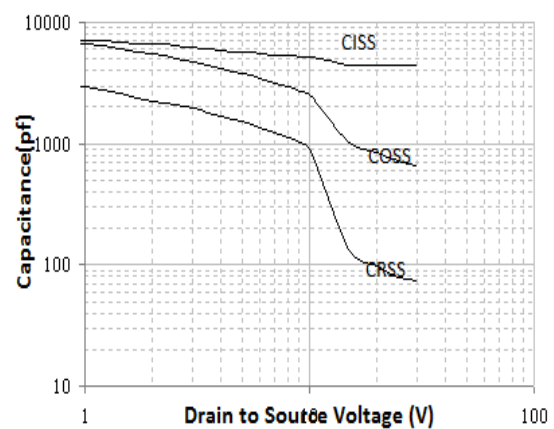
Transfer Characteristics

On-Resistance Variation vs.
Drain Current and Gate Voltage

Gate Charge Characteristics

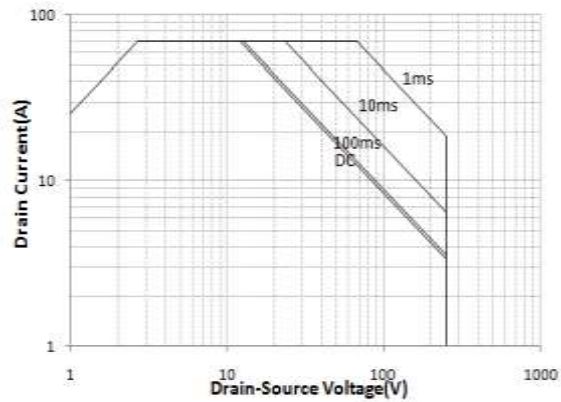
Body Diode Forward Voltage Variation
vs. Source Current and Temperature

Capacitance Characteristics

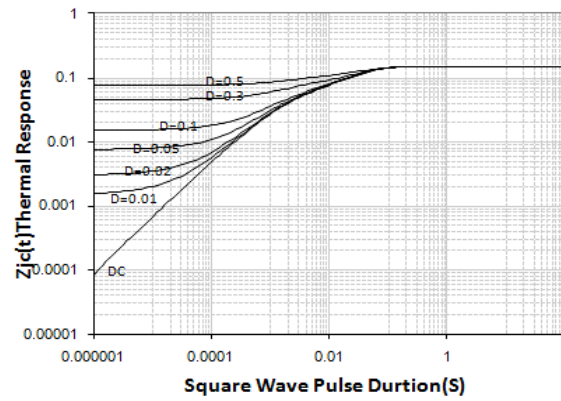




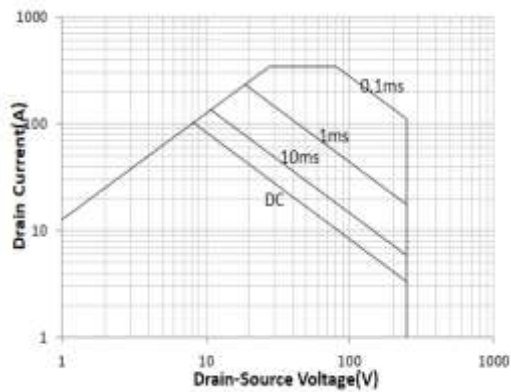
Maximum safe operating area
For JCS86N25WT/ABT



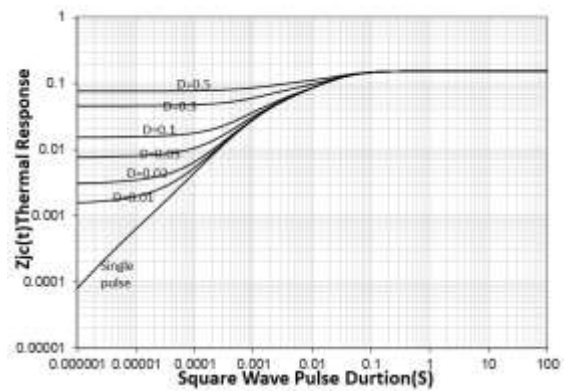
Transient Thermal Response Curve
For JCS86N25WT/ABT



Maximum safe operating area
For JCS86N25GCT



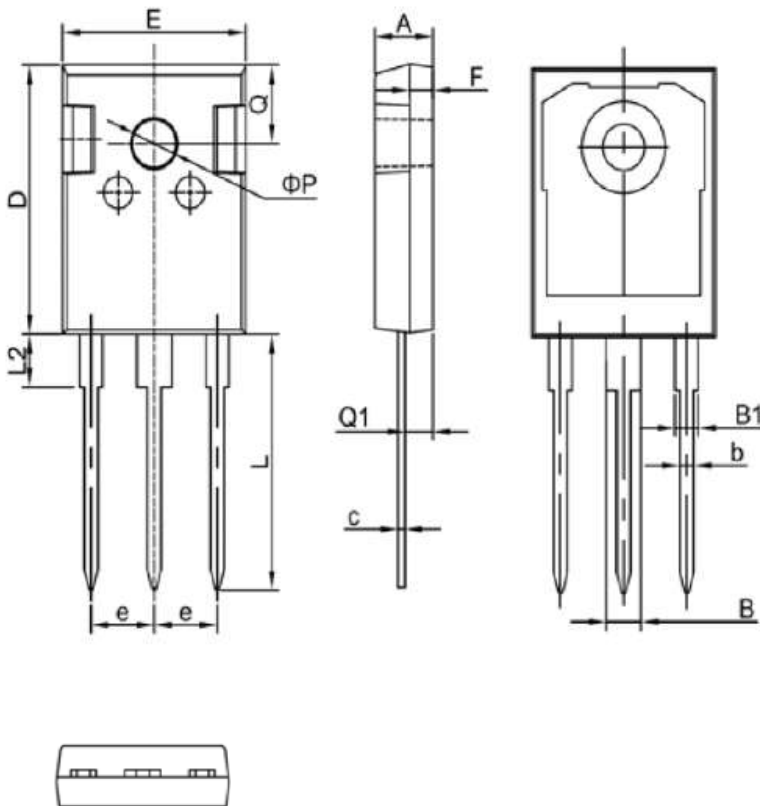
Transient Thermal Response Curve
For JCS86N25GCT





TO-247

单位 Unit: mm



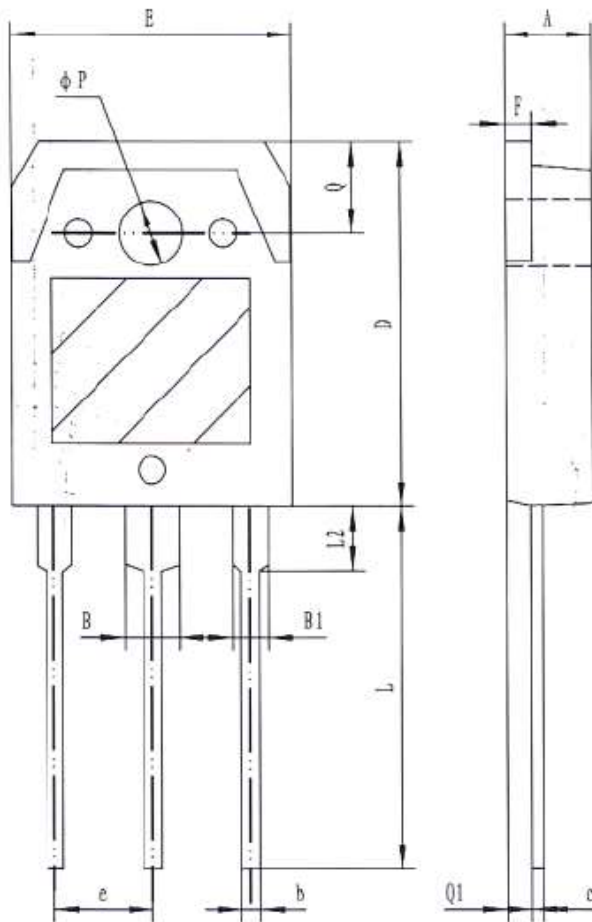
符号 symbol	MIN	MAX
A	4.90	5.10
B	2.95	3.35
B1	1.95	2.35
b	1.15	1.35
c	0.50	0.70
D	20.90	21.10
E	15.70	15.90
e	5.34	5.54
F	1.90	2.10
L	19.40	20.40
L2	4.03	4.23
Q	6.00	6.40
Q1	2.30	2.50
P	3.50	3.70





TO-3PB

单位 Unit: mm

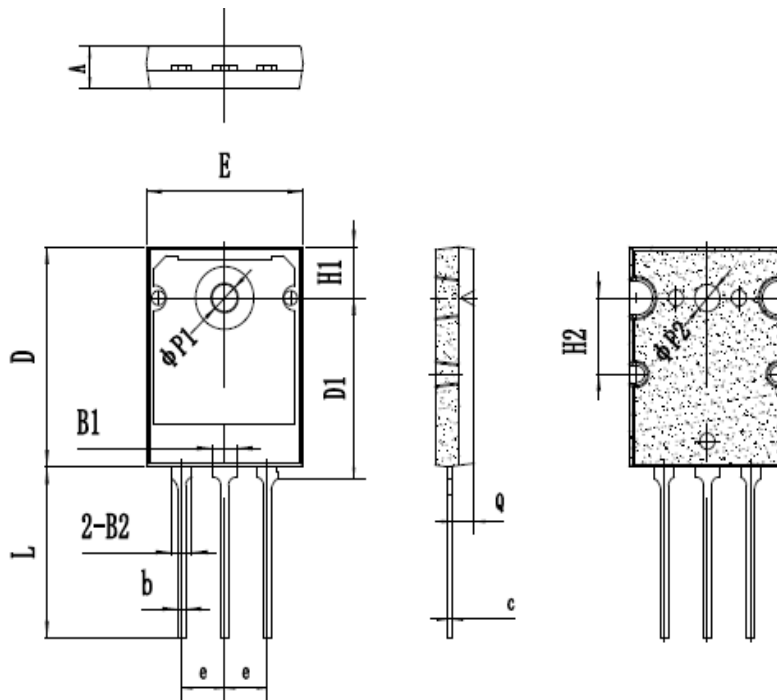


符号 symbol	MIN	MAX
A	4.60	5.00
B	2.90	3.20
B1	1.90	2.20
b	0.90	1.10
c	0.50	0.70
D	19.40	20.40
E	15.40	15.80
e	5.45(TYP)	
F	1.40	1.60
L	19.50	20.50
L2	3.30	3.70
Q	4.90	5.10
Q1	1.30	1.50
P	3.10	3.50



TO-3PLT

单位 Unit: mm



SYMBOL	mm		
	MIN	NOM	MAX
A	4.90	5.00	5.10
B1	3.00	3.10	3.20
B2	2.50	2.60	2.70
b	0.95	1.00	1.05
c	0.59	0.60	0.61
D	25.90	26.00	26.10
D1	20.98	21.28	21.58
E	19.85	19.95	20.05
e	5.40	5.45	5.50
H1	6.00	6.05	6.10
H2	8.95	9.00	9.05
L	20.00	20.20	20.40
Q	2.75	2.80	2.85
$\phi p1$	3.45	3.50	3.55
$\phi p2$	3.20	3.25	3.30



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