

主要参数 MAIN CHARACTERISTICS

ID(Tc=25℃, Silicon Limited)	100A
VDSS	500 V
Rdson-typ (@Vgs=10V)	45 mΩ
Qg-typ	306 nC

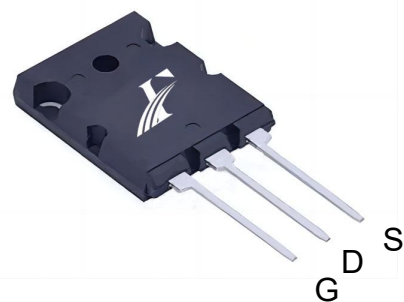
用途 APPLICATIONS

音响功放	Audio power amplifier
高频AC-DC开关电源	High frequency AC-DC switching power supply
半桥/全桥拓扑结构	Half-bridge/full-bridge topology

产品特性 FEATURES

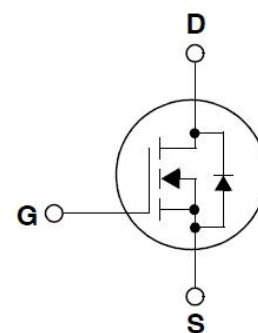
低内阻	Low On-Resistance
低栅极电荷	Low gate charge
低 Crss (典型值 173pF)	Low Crss (typical 173pF)
开关速度快	Fast switching
100%经过雪崩测试	100% avalanche tested
100%经过热阻测试	100% DVDS tested
100%经过 Rg 测试	100% Rg tested
符合 RoHS 标准	RoHS compliant
飞虹特色平面工艺技术	FH-plane technology
内置集成快恢复二极管	Fast Intrinsic Diode

封装形式 Package



TO-264
FHK series

示意图 Schematic diagram



绝对最大额定值 ABSOLUTE RATINGS (Tc25℃)

项目 Parameter	符号 Symbol	数值 Value	单位 Unit
		FHK100N50A	
最高漏极-源极直流电压 Drain-Source Voltage	V _{DS}	500	V
连续漏极电流* Drain Current -continuous *	I _D (T _C =25℃)	100	A
	I _D (T _C =100℃)	63	A
最大脉冲漏极电流 (注 1) Drain Current – pulse (note 1)	I _{DM}	400	A
最高栅源电压 Gate-Source Voltage	V _{GS}	±30	V
单脉冲雪崩能量 (注 2) Single Pulsed Avalanche Energy (note 2)	E _{AS}	1.13	J
单脉冲雪崩能量测试值 (注 3) Single Pulsed Avalanche Energy Tested Value (note 3)	E _{AS} (Tested)	3125	mJ
耗散功率 Power Dissipation	P _D (T _C =25℃)	1389	W
	-Derate above 25℃	11.1	W/℃
最高结温及存储温度 Operating and Storage Temperature Range	T _J , T _{STG}	150, -55~+150	℃
引线最高焊接温度 Maximum Lead Temperature for Soldering Purposes (1.6mm from case for 10s)	T _L	300	℃

*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 =250μA, V _{GS} =0V	500	530	-	V
击穿电压温度特性 Breakdown Voltage Temperature Coefficient	ΔBV _{DSS} /Δ T _J	I _D =250μA, referenced to 25℃	-	0.5	-	V/℃
零栅压下漏极漏电流 Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =500V, V _{GS} =0V, T _J =25℃	-	-	1	μA
		V _{DS} =400V, T _J =125℃	-	-	250	μA
栅极体漏电流 Gate-body leakage current	I _{GSS} (F/R)	V _{DS} =0V, V _{GS} =±20V	-	-	±100	nA
通态特性 On-Characteristics						
阈值电压 Gate Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D =250μA	3	3.85	5	V
静态导通电阻 Static Drain-Source On-Resistance	R _{DS(ON)}	V _{GS} =10V , I _D =50A	-	45	55	mΩ
动态特性 Dynamic Characteristics						
栅电阻 Gate Resistance	R _g	f=1.0MHz, V _{DS} OPEN	-	0.6	-	Ω
输入电容 Input capacitance	C _{iss}	V _{DS} =25V, V _{GS} =0V, f=1.0MHz	-	16560	-	pF
输出电容 Output capacitance	C _{oss}		-	1409	-	
反向传输电容 Reverse transfer capacitance	C _{rss}		-	173	-	
开关特性 Switching Characteristics						
延迟时间 Turn-On delay time	t _{d(on)}	V _{DS} =250V, I _D =47A, R _{G_ext} =1Ω V _{GS} =10V (note 4)	-	150	-	ns
上升时间 Turn-On rise time	t _r		-	298	-	ns
延迟时间 Turn-Off delay time	t _{d(off)}		-	236	-	ns
下降时间 Turn-Off Fall time	t _f		-	112	-	ns
栅极电荷总量 Total Gate Charge	Q _g	V _{DS} =250V , I _D =47A , V _{GS} =10V (note 4)	-	306	-	nC
栅－源电荷 Gate-Source charge	Q _{gs}		-	91	-	nC
栅－漏电荷 Gate-Drain charge	Q _{gd}		-	117	-	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		-	-	100	A
正向最大脉冲电流 Maximum Pulsed Drain-Source Diode Forward Current	I _{SM}		-	-	400	A
正向压降 Drain-Source Diode Forward Voltage	V _{SD}	V _{GS} =0V, I _S =100A	-	1.05	1.4	V
反向恢复时间 Reverse recovery time	t _{rr}	V _{GS} =0V, I _S =47A , dI _F /dt=100A/μs (note 4)	-	330	-	ns
反向恢复电荷 Reverse recovery charge	Q _{rr}		-	2150	-	nC
峰值反向恢复电流 peak Reverse recovery current	I _{rrm}		-	12.8	-	A

热特性 THERMAL CHARACTERISTIC

项目 Parameter	符号 Symbol	Max	单位 Unit
结到管壳的热阻 Thermal Resistance, Junction to Case	Rth(j-c)	0.09	℃/W
结到环境的热阻 Thermal Resistance, Junction to Ambient	Rth(j-A)	30	℃/W

- 注释：
- 1: 脉冲宽度由最高结温限制
 - 2: L=10mH, VDD=150V, RG=25 Ω,起始结温 TJ=25℃
 - 3: 该值由故障样本确定，在生产中 100%测试了该值。
 - 4: 脉冲测试：脉冲宽度 ≤300μs,占空比≤2%

- Notes:
- 1: Pulse width limited by maximum junction temperature
 - 2: L=10mH, VDD=150V, RG=25 Ω,Starting TJ=25℃
 - 3: This value determined from sample failure population, 100% tested to this value in production.
 - 4: Pulse Test: Pulse Width ≤300μs,Duty Cycle≤2%

Test Circuit & Waveform

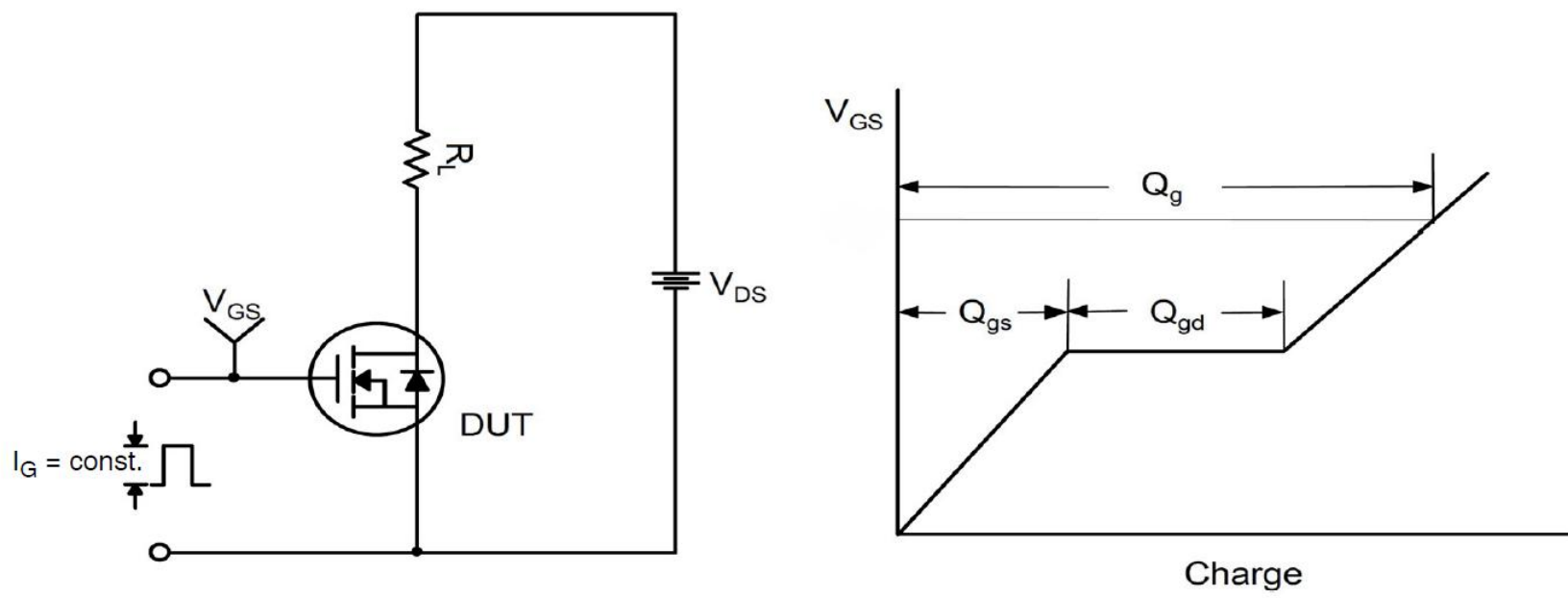


Figure 1. Gate Charge Test Circuit & Waveforms

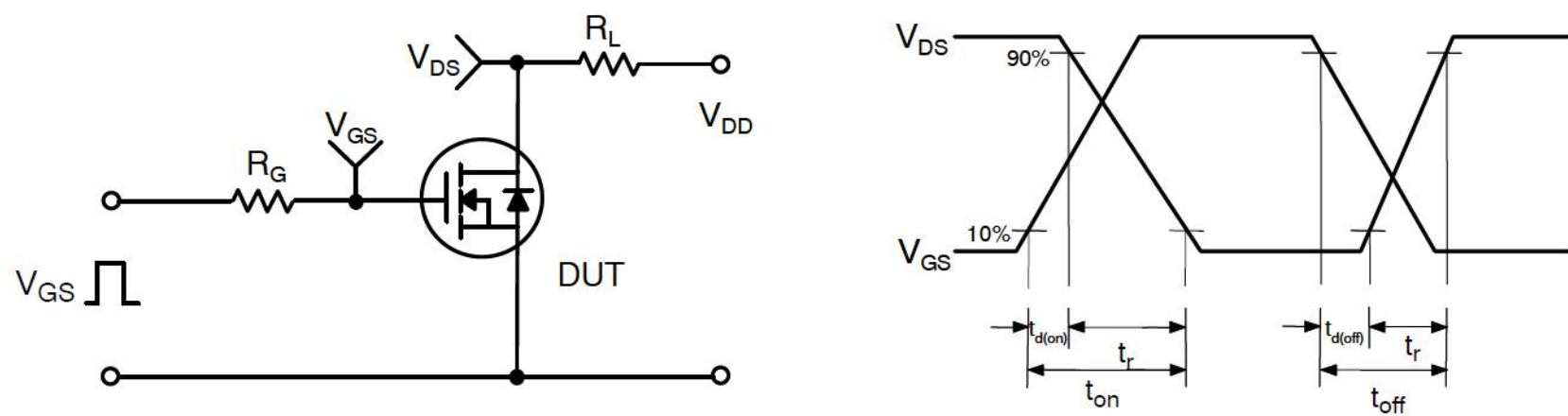


Figure 2. Resistive Switching Test Circuit & Waveforms

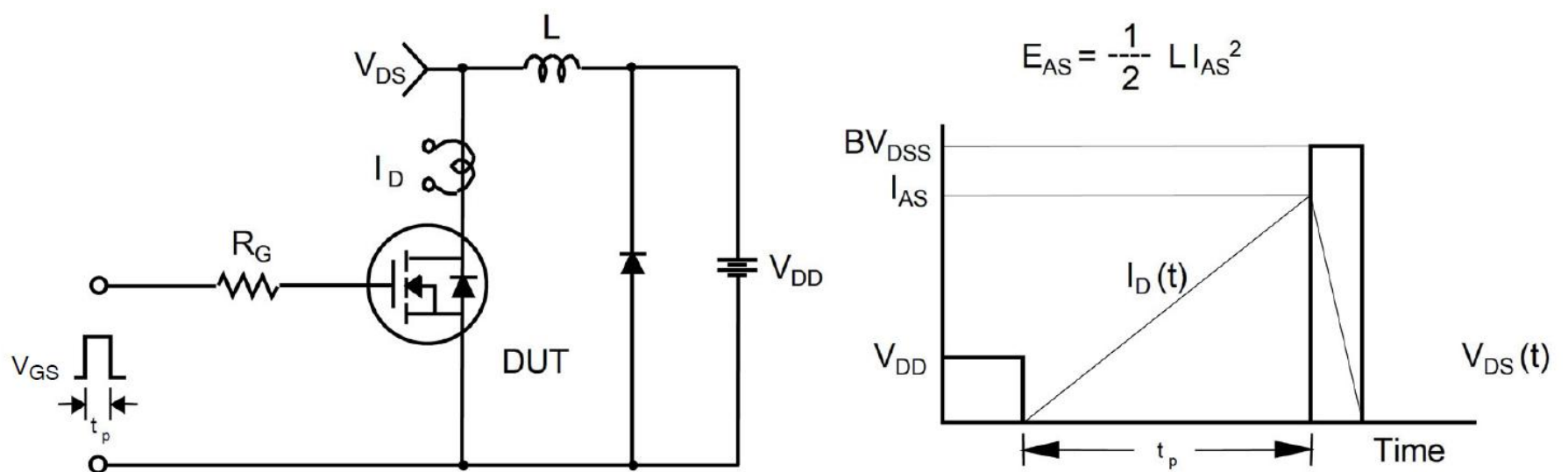


Figure 3. Unclamped Inductive Switching Test Circuit & Waveforms

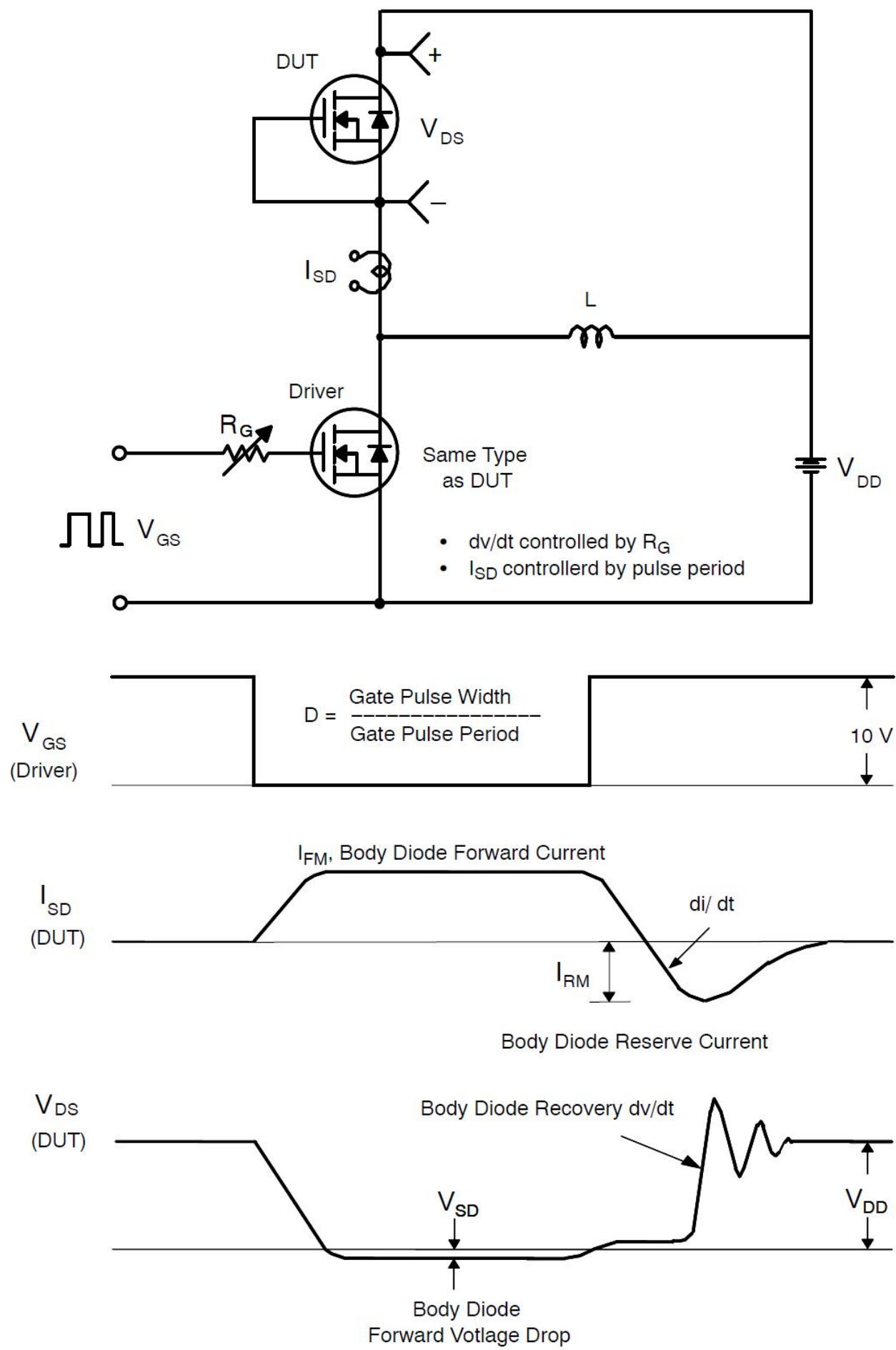
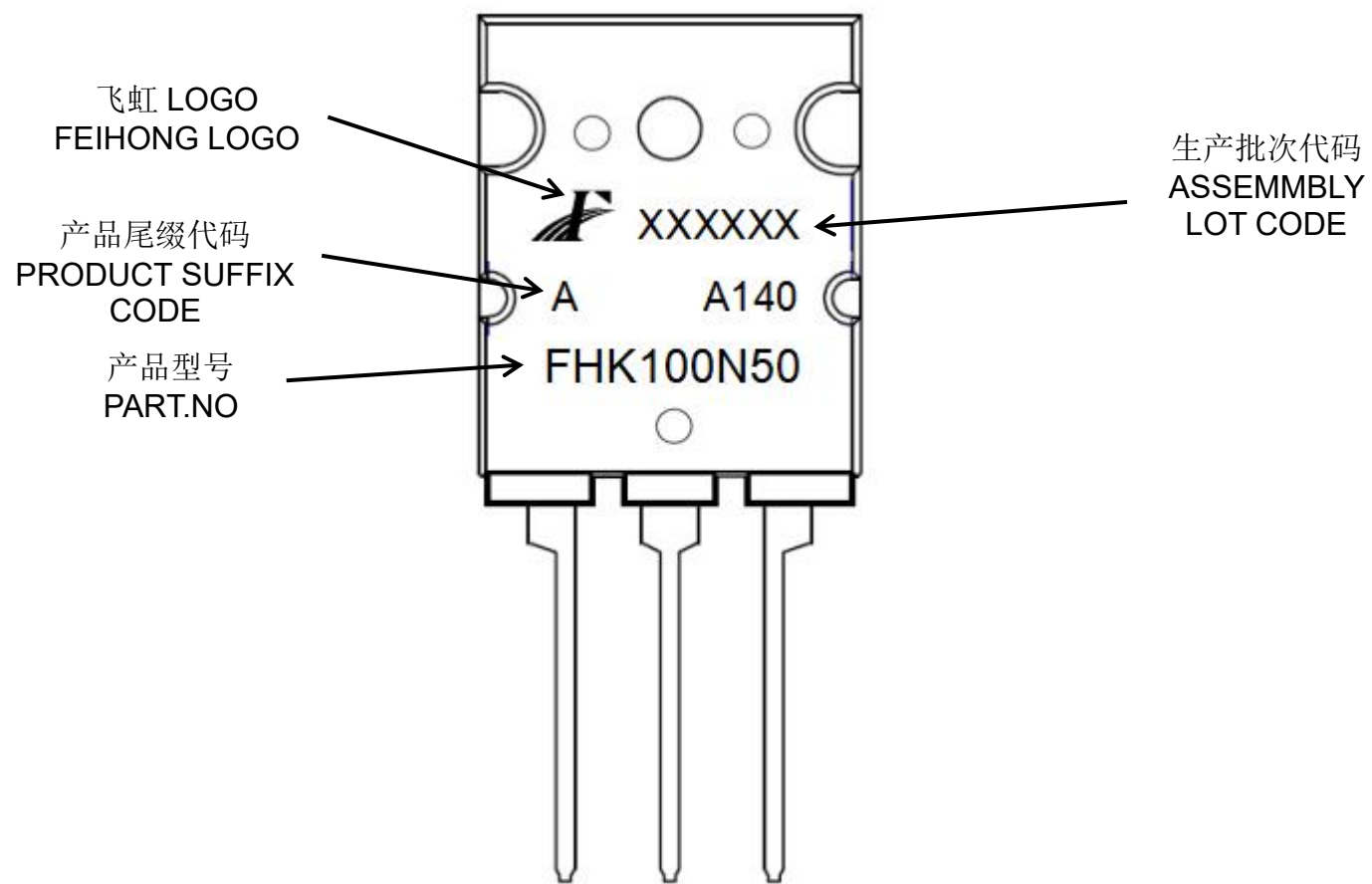


Figure 4. Peak Diode Recovery dv/dt Test Circuit & Waveforms

印记 Marking:



外形尺寸:
Package Dimension

T0-264

