ELLISON SEMICONDUCTOR

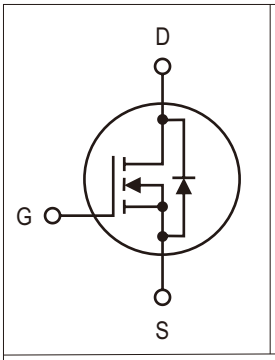
N-沟道功率MOS管/N-CHANNEL POWER MOSFET SI2N65

- 特点：导通电阻低 开关速度快 输入阻抗高 符合ROHS规范
- FEATURES: ■LOW ON-RESISTANCE ■FAST SWITCHING ■HIGH INPUT RESISTANCE ■ROHS COMPLIANT
- 应用：电子镇流器 电子变压器 开关电源 LED驱动器
- APPLICATION: ■ELECTRONIC BALLAST ■ELECTRONIC TRANSFORMER ■SWITCH MODE POWER SUPPLY ■LED DRIVER

● 最大额定值：（Tc=25℃）

● Absolute Maximum Ratings （Tc=25℃） TO-251/TO-252

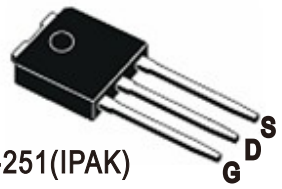
参数 PARAMETER	符号 SYMBOL	额定值 VALUE	单位 UNIT
漏-源电压 Drain-source Voltage	V_{DS}	650	V
栅-源电压 Gate-source Voltage	V_{GS}	±30	V
漏极电流 Continuous Drain Current Tc=25℃	I_D	2.0*	A
漏极电流 Continuous Drain Current Tc=100℃	I_D	1.25*	A
最大脉冲电流 Drain Current-Pulsed ①	I_{DM}	8.0*	A
耗散功率 Power Dissipation	P_D	44	W
最高结温 Junction Temperature	Tj	150	℃
存储温度 Storage Temperature	T_{STG}	-55-150	℃
单脉冲雪崩能量 Single Pulse Avalanche Energy ②	EAS	120	mJ



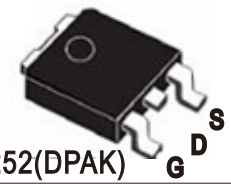
V_{DS}=650V

R_{DS}(ON)=5.0Ω

I_D=2.0A



TO-251(IPAK)



TO-252(DPAK)

*漏极电流由最高结温限制

*Drain current limited by maximum junction temperature

● 热特性

● Thermal Characteristics

参数 PARAMETER	符号 SYMBOL	最小值 MIN	典型值 TYP	最大值 MAX	单位 UNIT
热阻结-壳 Thermal Resistance Junction-case	Rth_{JC}			2.87	℃/W
热阻结-环境 Thermal Resistance Junction-ambient	Rth_{JA}			110	℃/W

● 订购信息

● Ordering Information

产品型号 OrderCode	产品丝印 Marking	封装外形 Package	包装形式 Packing	包装数量 packing quantity				
SI2N65K	SI2N65K	TO-251	Tube	75Pcs/Tube	80T/Box	6.0K/Box	5B/Carton	30K/Carton
SI2N65D	SI2N65D	TO-252	Tape Reel	2.5K/Reel		2.5K/Box	10B/Carton	25K/Carton

Note: T: Tube/管 R:Reel/卷盘 B:Box/内盒 C:Carton/箱

ELLISON SEMICONDUCTOR

N-沟道功率MOS管/N-CHANNEL POWER MOSFET SI2N65

● 电特性：（Tc=25℃）

● Electronic Characteristics（Tc=25℃）

参数 PARAMETER	符号 SYMBOL	测试条件 TEST CONDITION	最小值 MIN	典型值 TYP	最大值 MAX	单位 UNIT
漏-源击穿电压 Drain-source Breakdown Voltage	BV_{DSS}	V_{GS}=0V, I_D=250μA	650			V
击穿电压温度系数 Breakdown Voltage Temperature Coefficient	$\Delta BV_{DSS}/\Delta Tj$	I_D=250μA, Referenced to 25℃		0.6		V/℃
栅极开启电压 Gate Threshold Voltage	$V_{GS(TH)}$	V_{GS}=V_{DS}, I_D=250μA	2.0		4.0	V
漏-源漏电流 Drain-source Leakage Current	I_{DSS}	V_{DS}=650V, V_{GS}=0V, Tj=25℃			25	μA
		V_{DS}=520V, V_{GS}=0V, Tj=125℃			250	μA
跨 导 Forward Transconductance	gfs	V_{DS}=40V, I_D=1.0A		1.5		S
栅极漏电流 Gate-body Leakage Current(V_{DS}=0)	I_{GSS}	V_{GS}=±30V			±100	nA
漏-源导通电阻 Static Drain-source On Resistance	$R_{DS(ON)}$)	V_{GS}=10V, I_D=1.0A ③			5.0	Ω
输入电容 Input Capacitance	C_{iss}	V_{GS}=0V, V_{DS}=25V, F=1.0MHz		320		pF
输出电容 Onput Capacitance	C_{oss}	V_{GS}=0V, V_{DS}=25V, F=1.0MHz		30		pF
反相转移电容 Reverse Transfer Capacitance	C_{rss}	V_{GS}=0V, V_{DS}=25V, F=1.0MHz		3.8		pF
开启延迟时间 Turn-On Delay Time	$T_{d(on)}$	V_{DD}=300V, I_D=2.0A R_G=18Ω ③		7.8		ns
上升时间 Turn-On Rise Time	Tr	V_{DD}=300V, I_D=2.0A R_G=18Ω ③		5.5		ns
关断延迟时间 Turn-Off Delay Time	$T_{d(off)}$	V_{DD}=300V, I_D=2.0A R_G=18Ω ③		33		ns
下降时间 Turn-Off Fall Time	Tf	V_{DD}=300V, I_D=2.0A R_G=18Ω ③		16		ns
栅极电荷 Total Gate Charge	Qg	I_D=2.0A, V_{DS}=520V V_{GS}=10V ③		7.2		nC
栅源电荷 Gate-to-Source Charge	Qgs			4.3		nC
栅漏电荷 Gate-to-Drain Charge	Qgd			1.6		nC
二极管正向电流 Continuous Diode Forward Current	I_S				2.0	A
二极管正向压降 Diode Forward Voltage	V_{SD}	Tj=25℃, I_S=2.0A V_{GS}=,0V ③			1.4	V
反向恢复时间 Reverse Recovery Time	Trr	Tj=25℃, If=2.0A di/dt=100A/μS ③		380		ns
反向恢复电荷 Reverse Recovery Charge	Qrr			0.9		uC

注释（Notes）：

①脉冲宽度：以最高结温为限制

Repetitive rating: Pulse width limited by maximum junction temperature

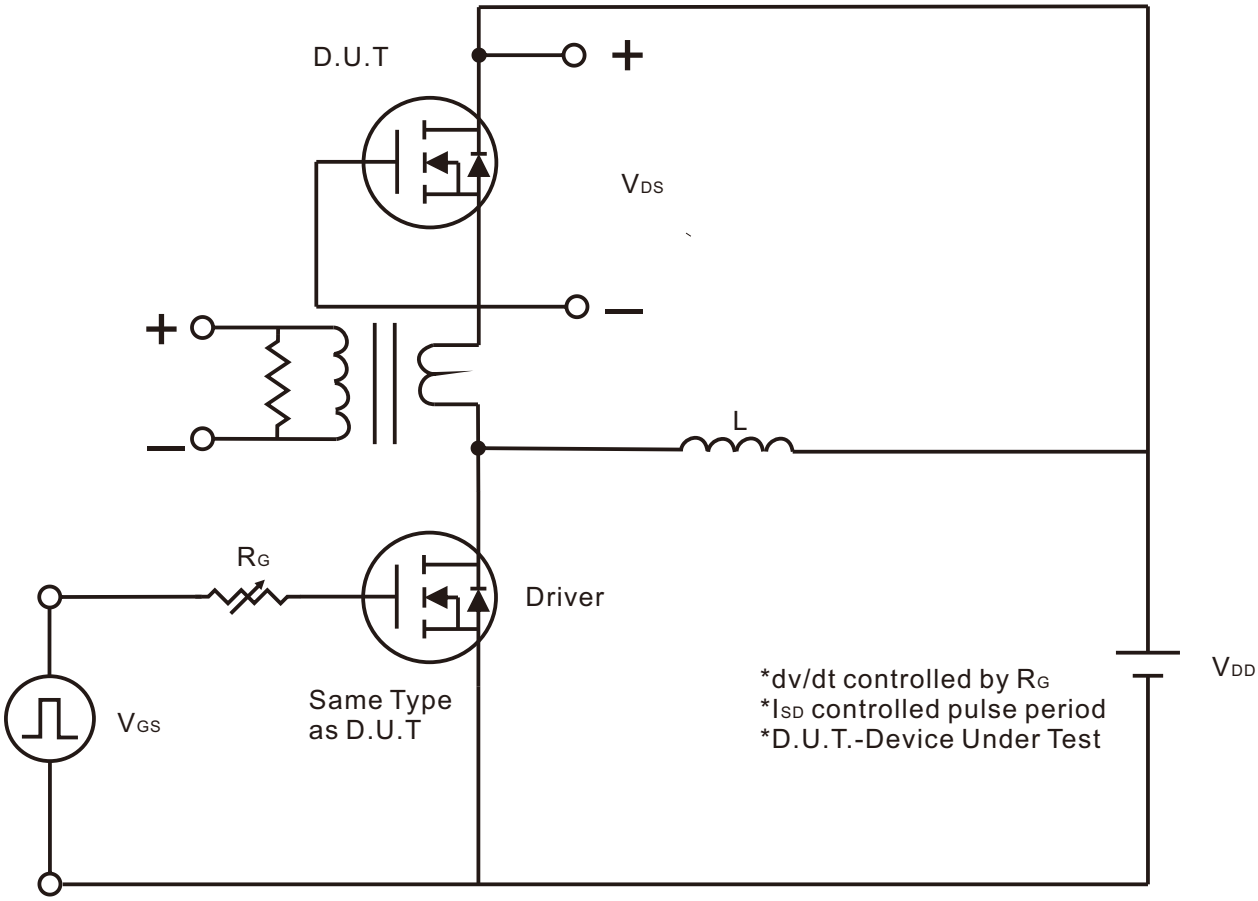
②初始结温=25℃，V_{DD}=50V, L=56mH, R_G=25Ω, I_{AS}=2.0A

Starting Tj=25℃，V_{DD}=50V, L=56mH, R_G=25Ω, I_{AS}=2.0A

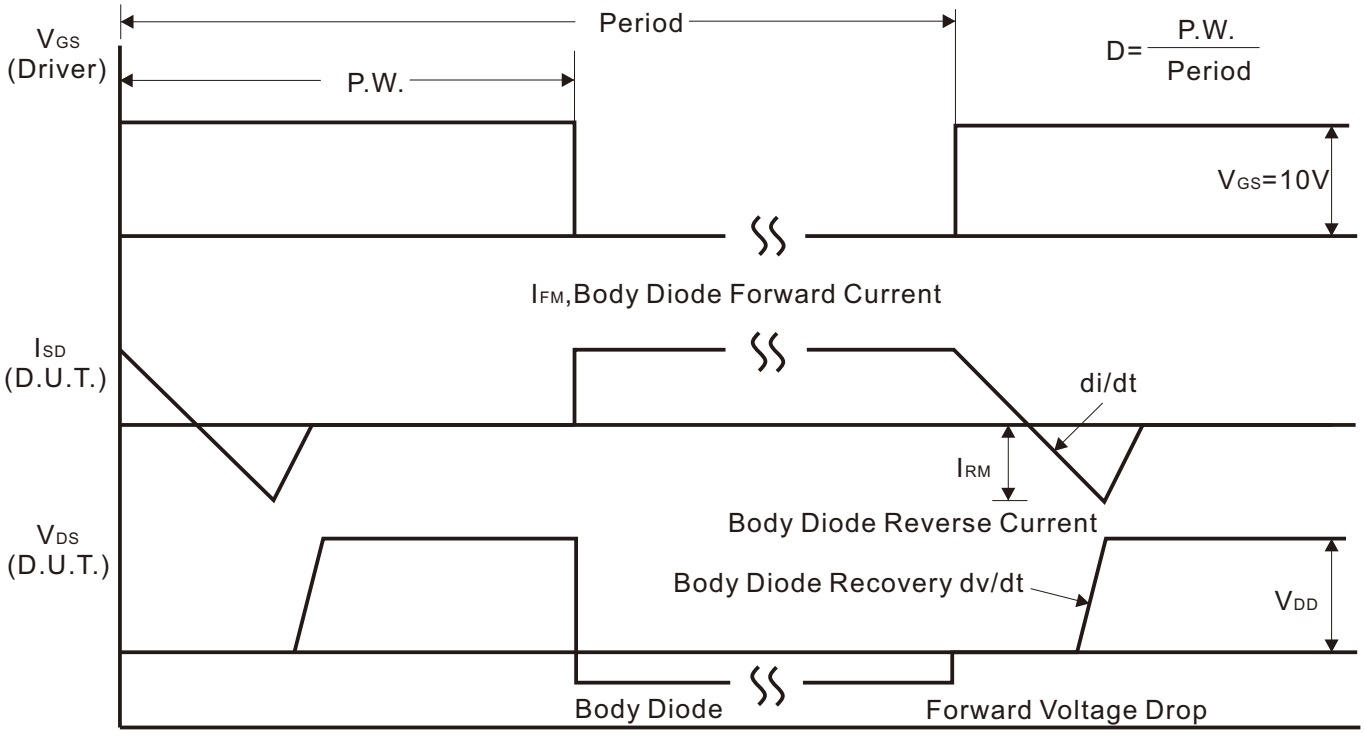
③脉冲测试：脉冲宽度≤300μs,占空比≤2%

Pulse Test: Pulse width≤300μs, Duty cycle≤2%

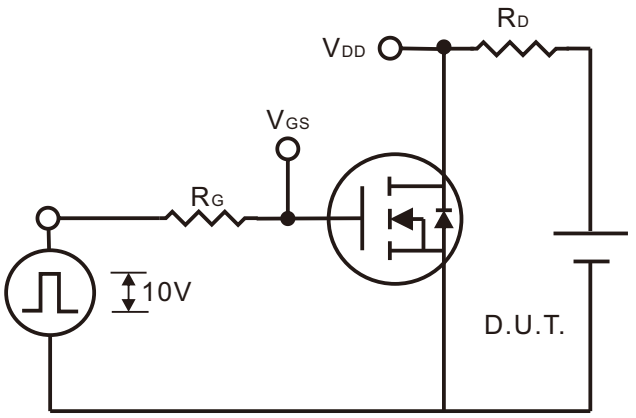
● TEST CIRCUITS AND WAVEFORMS



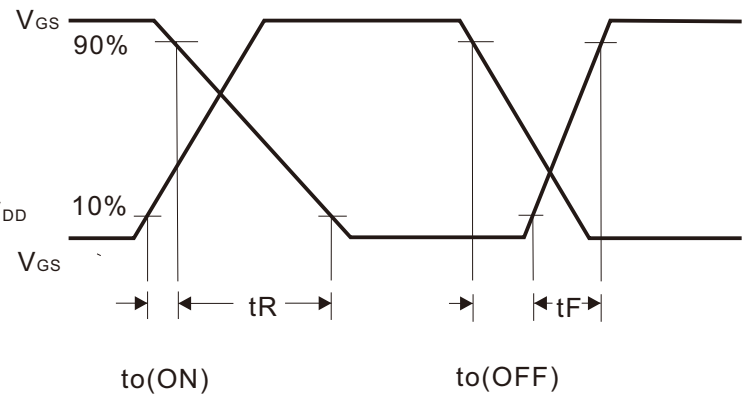
Peak Diode Recovery Test Circuit



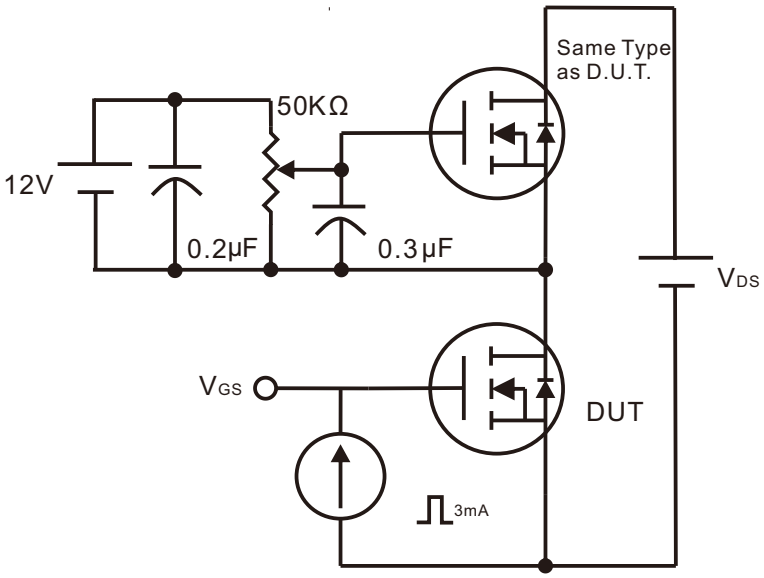
Peak Diode Recovery dv/dt Waveforms



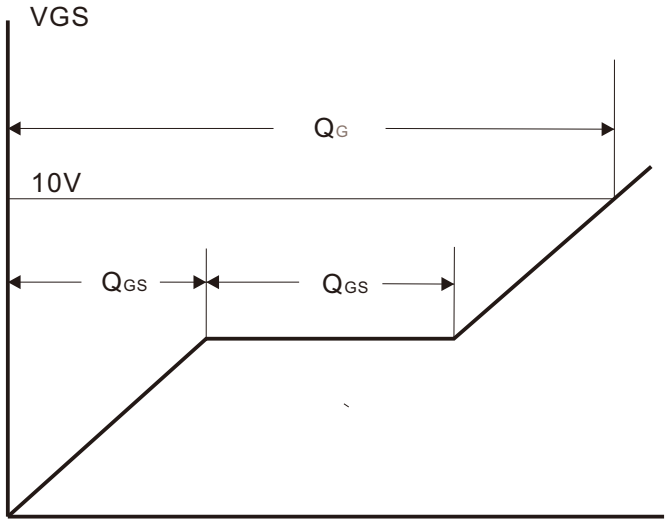
Switching Test Circuit



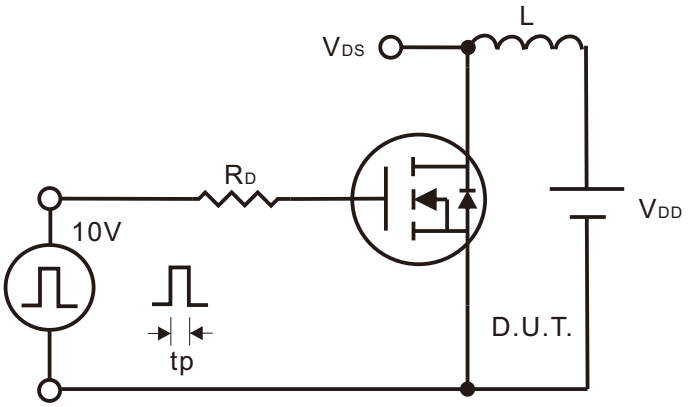
Switching Waveforms



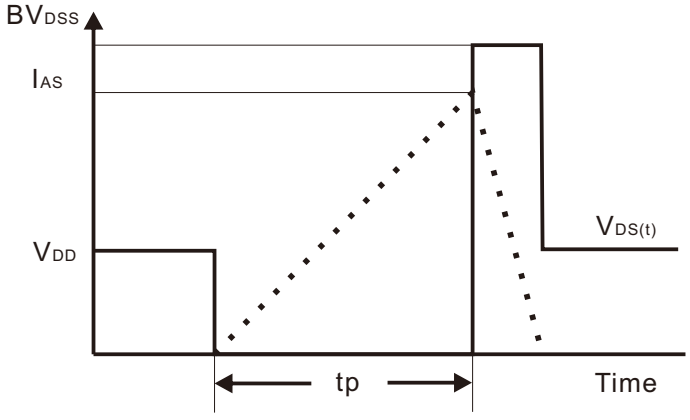
Gate Charge Test Circuit



Gate Charge Waveform



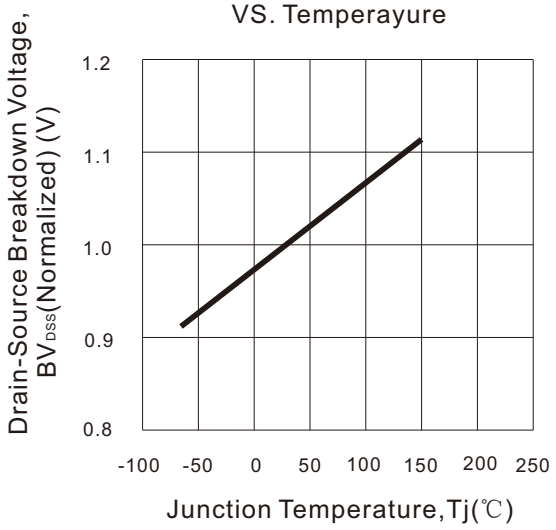
Unclamped Inductive Switching Test Circuit



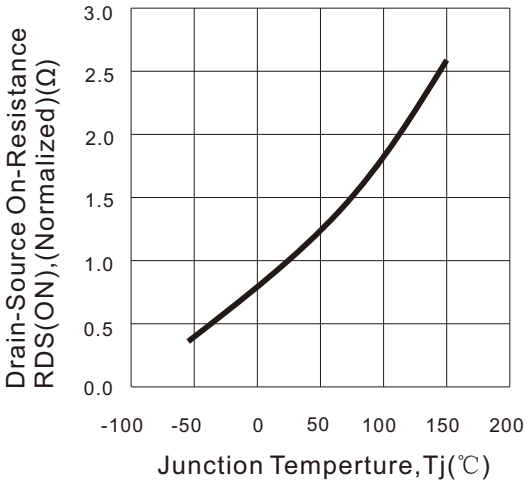
Unclamped Inductive Switching Waveforms

● 特征曲线 TYPICAL CHARCTERISTICS

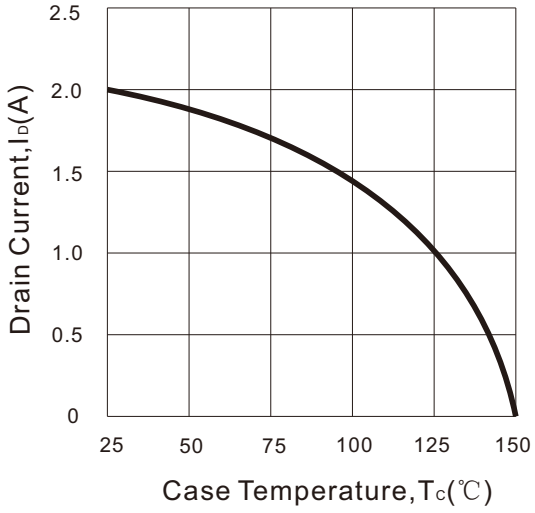
Breakdown Voltage Variation VS. Temperayure



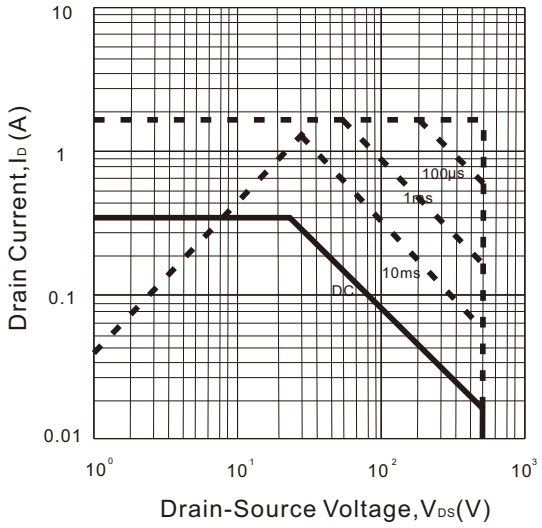
On-Resistance Junction Temperature



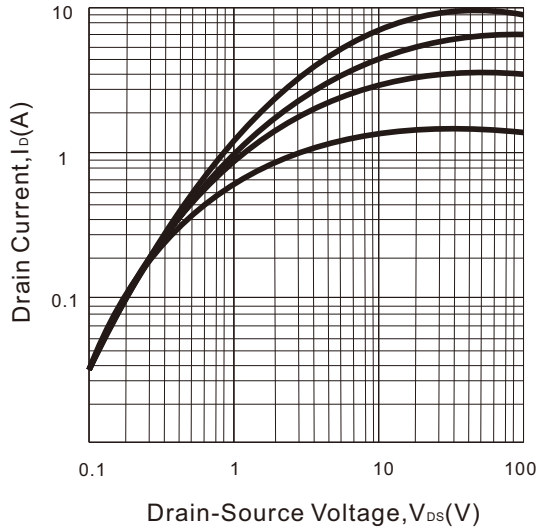
Maximum Drain Current VS.Case Temperature



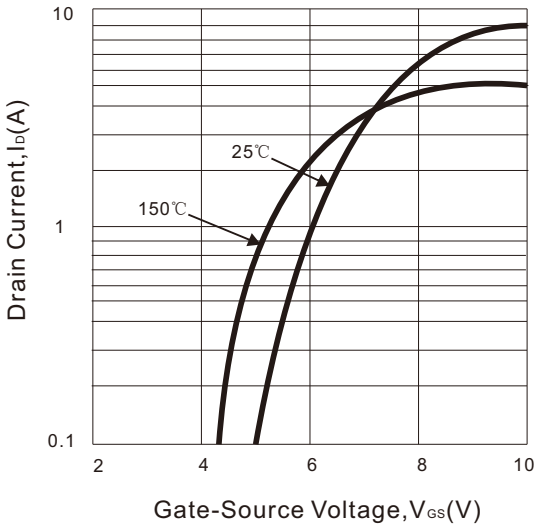
Maximum Safe Operating Area



On-State Characteristics

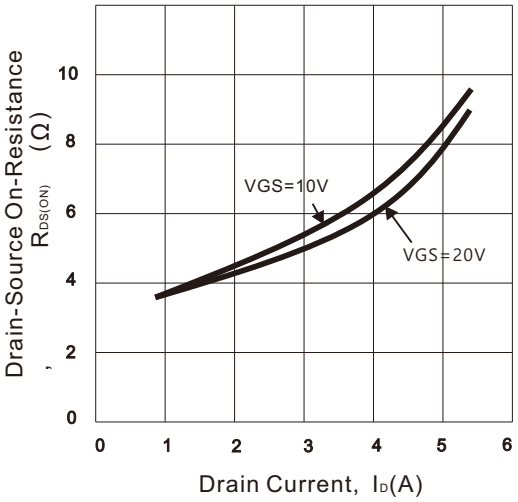


Transfer Characteristics

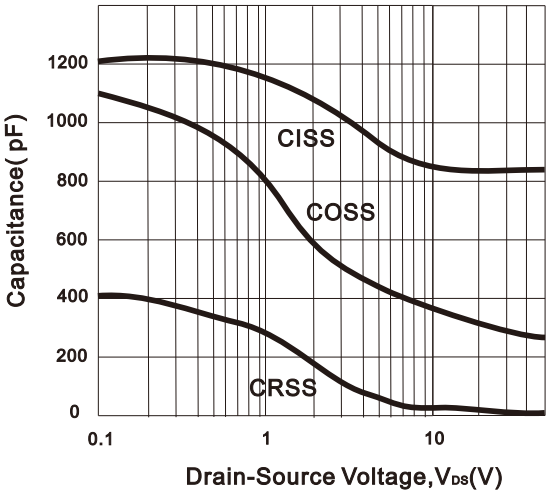


● 特征曲线 TYPICAL CHARACTERISTICS

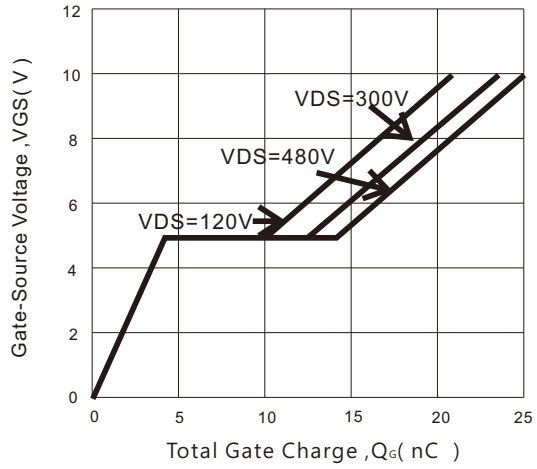
On-Resistance Variation vs.
Drain Currentand Gate Voltage



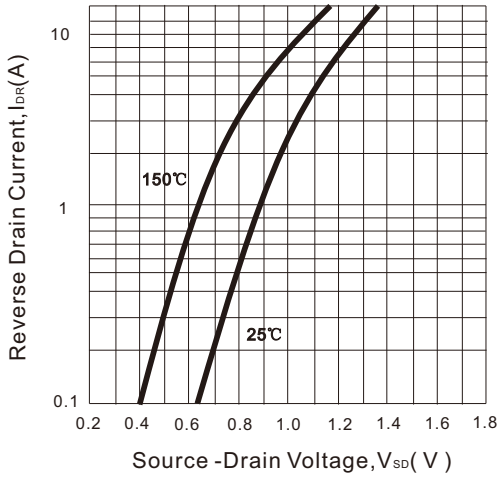
Capacitance Characteristics
(Non-Repetitive)



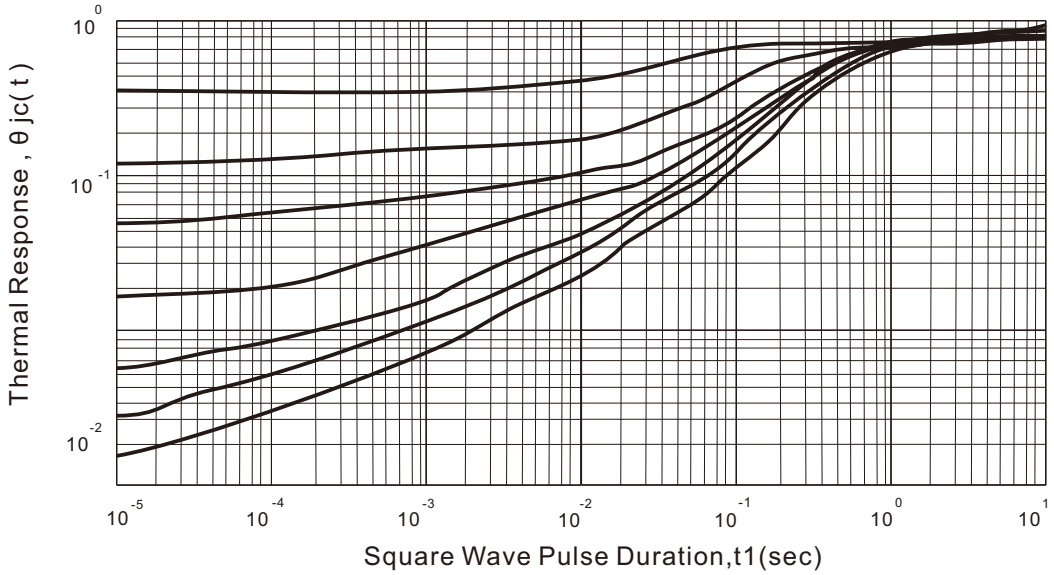
Gate Charge Characteristics



Body Diode Forward Voltage Variation
With Source Current and Temperature

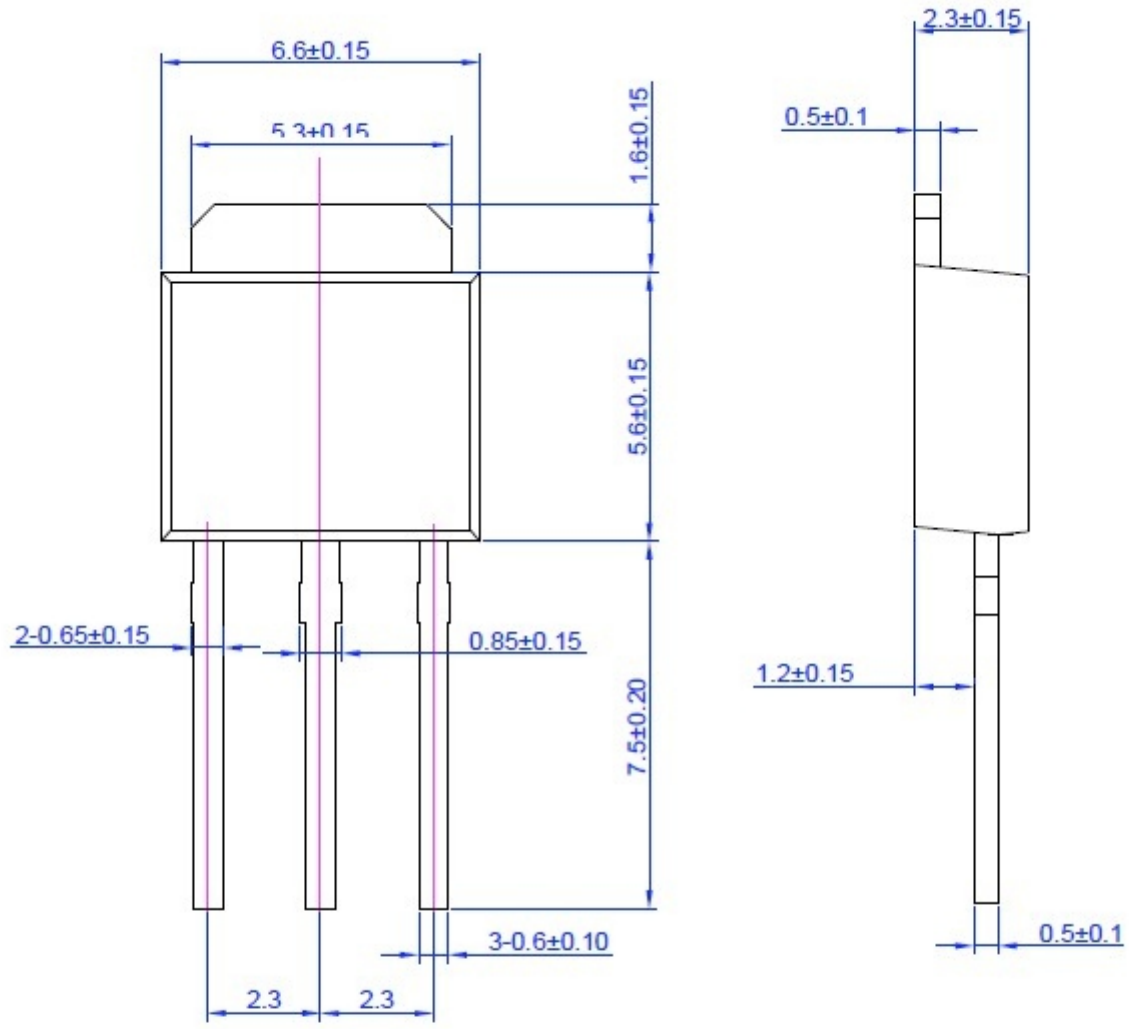


Transient Thermal Response Curve



TO-251机械尺寸图

SI2N65

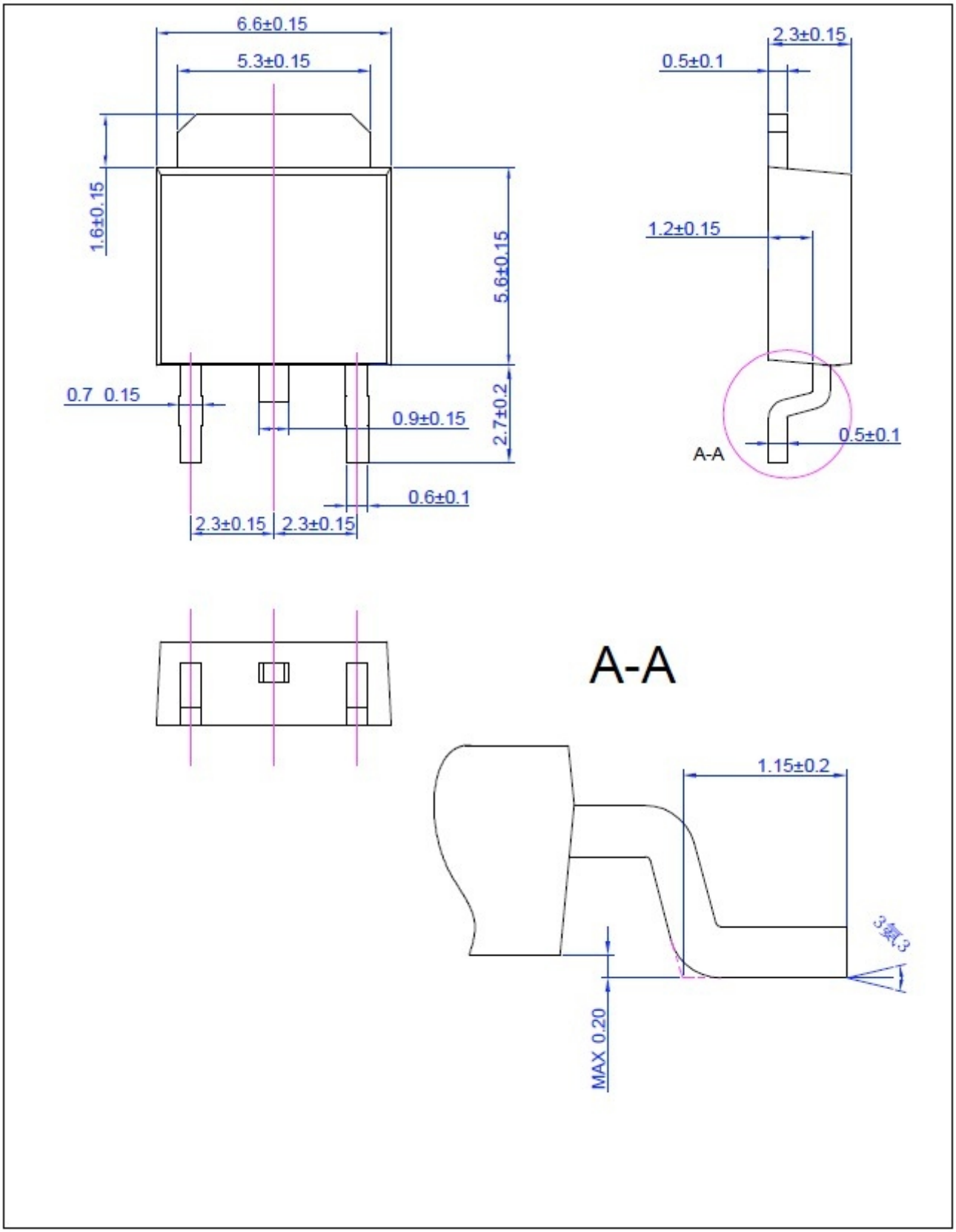


技术要求：
1.为标注公差为±0.15mm
2.标注单位mm

NAME.	TO-251	UNIT	mm	DESIGNED		THIRD ANGLE SYSTEM
DWGNO	HW-DT-006c	PAGE	1OF1	CHECKED		
VERSION	Ver.A	ISSUE DATE	Oct/10/2012	APPROVED		

TO-252机械尺寸图

SI2N65



NAME.	TO-252 outline	UNIT	mm	DESIGNED		THIRD ANGLE SYSTEM
DWGNO	HW-DT-007c	PAGE	1OF1	CHECKED		
VERSION	Ver.A	ISSUE DATE	Oct/10/2012	APPROVED		