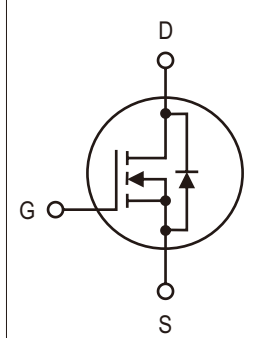
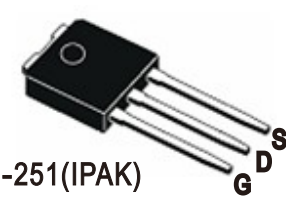


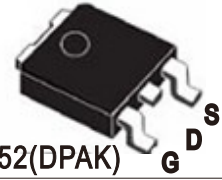
- 特点：导通电阻低 开关速度快 输入阻抗高 符合ROHS规范
- FEATURES: ■LOW ON-RESISTANCE ■FAST SWITCHING ■HIGH INPUT RESISTANCE ■ROHS COMPLIANT
- 应用：电子镇流器 电子变压器 开关电源 LED驱动器
- APPLICATION: ■ELECTRONIC BALLAST ■ELECTRONIC TRANSFORMER ■SWITCH MODE POWER SUPPLY ■LED DRIVER

- 最大额定值：(Tc=25°C)
- Absolute Maximum Ratings (Tc=25°C) TO-251/TO-252

参数 PARAMETER	符号 SYMBOL	额定值 VALUE	单位 UNIT	 $V_{DS}=650V$ $R_{DS(ON)max}=2.1\Omega$ $I_D=4.0A$
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°C	I_D	4.0*	A	
漏极电流 Continuous Drain Current Tc=100°C	I_D	2.5*	A	
最大脉冲电流 Drain Current-Pulsed ①	I_{DM}	16*	A	
耗散功率 Power Dissipation	P_D	50	W	
最高结温 Junction Temperature	T_J	150	°C	
存储温度 Storage Temperature	T_{STG}	-55-150	°C	
单脉冲雪崩能量 Single Pulse Avalanche Energy ②	EAS	128	mJ	



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	R_{thJC}			2.60	°C/W
热阻结-环境 Thermal Resistance Junction-ambient	R_{thJA}			62.5	°C/W

- 订购信息
- Ordering Information

普通塑封料 Lead Free	产品丝印 Marking	封装外形 Package	包装形式 Packing	包装数量 packing quantity				
				80Pcs/Tube	75T/Box	6.0K/Box	5B/Carton	30K/Carton
SI4N65U	SI4N65U	TO-251	Tube	80Pcs/Tube	75T/Box	6.0K/Box	5B/Carton	30K/Carton
SI4N65D	SI4N65D	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

- 电特性：(Tc=25°C)
- Electronic Characteristics (Tc=25°C)

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	ΔBV _{DSS} /ΔT _J	I _D =250μA, Referenced to 25°C		0.6		V/°C	
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, T _J =25°C			25	μA	
		V _{DS} =520V, V _{GS} =0V, T _J =125°C			250	μA	
跨导 Forward Transconductance	g _{fs}	V _{DS} =40V, I _D =2.0A		2.5		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 =2.0A ③		1.88	2.1	Ω	
输入电容 Input Capacitance	C _{iss}	V _{GS} =0V, V _{DS} =25V, F=1.0MHz		590	650	pF	
输出电容 Output Capacitance	C _{oss}				48		pF
反相转移电容 Reverse Transfer Capacitance	C _{rss}				5		pF
开启延迟时间 Turn-On Delay Time	T _{d(on)}	V _{DD} =325V, I _D =4.0A R _G =25Ω ③		25		ns	
上升时间 Turn-On Rise Time	T _r			45		ns	
关断延迟时间 Turn-Off Delay Time	T _{d(off)}			25		ns	
下降时间 Turn-Off Fall Time	T _f			35		ns	
栅极电荷 Total Gate Charge	Q _g	I _D =4.0A, V _{DS} =520V V _{GS} =10V ③		14.3		nC	
栅源电荷 Gate-to-Source Charge	Q _{gs}			2.8		nC	
栅漏电荷 Gate-to-Drain Charge	Q _{gd}			4.5		nC	
二极管正向电流 Continuous Diode Forward Current	I _s				4.0	A	
二极管正向压降 Diode Forward Voltage	V _{SD}	T _J =25°C, I _s =4.0A V _{GS} =,0V ③			1.4	V	
反向恢复时间 Reverse Recovery Time	T _{rr}	T _J =25°C, I _f =4.0A di/dt=100A/μS ③		390		ns	
反向恢复电荷 Reverse Recovery Charge	Q _{rr}				1.5		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

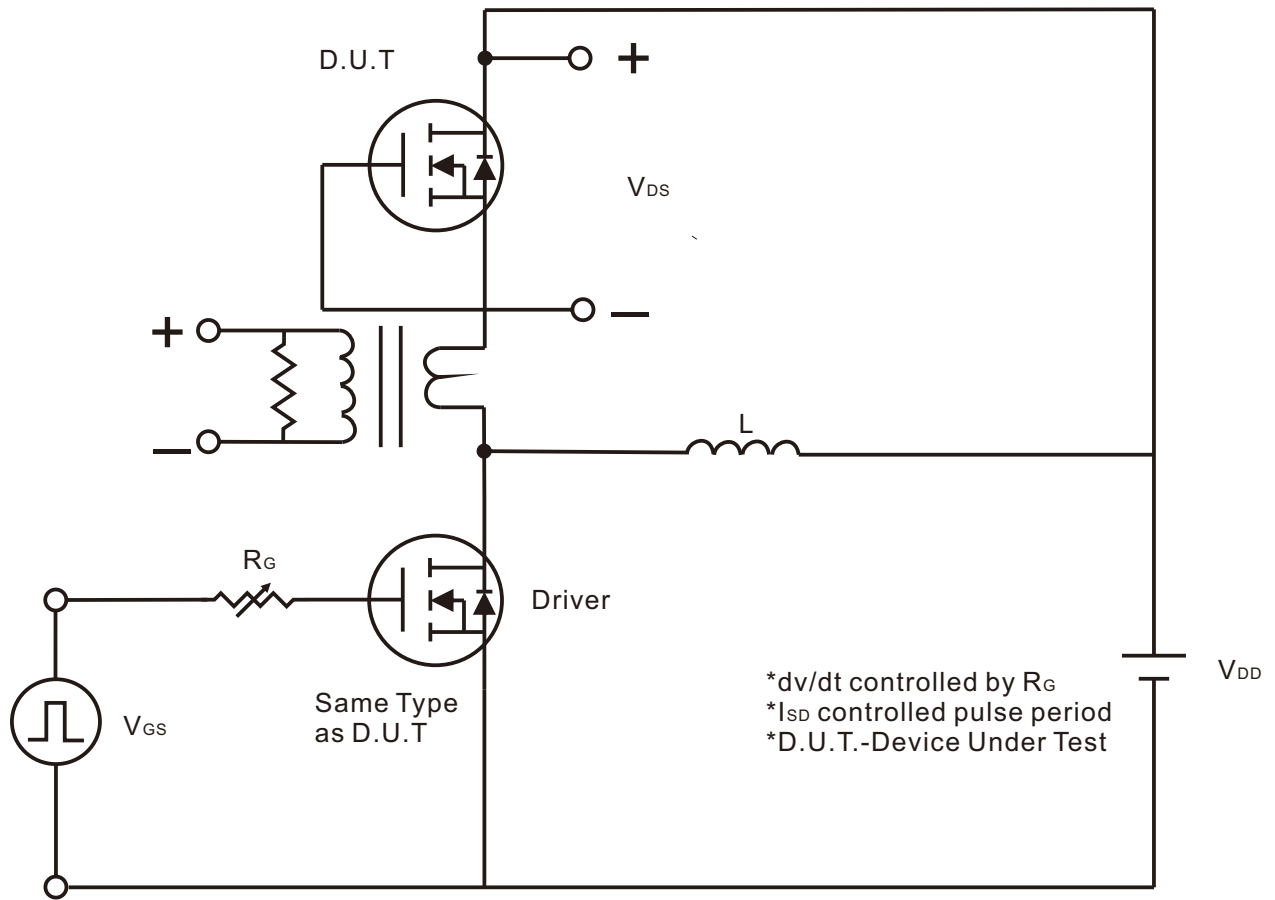
②初始结温=25°C, V_{DD}=50V, L=25mH, R_G=25Ω, I_{AS}=4.0A

Starting T_J=25°C, V_{DD}=50V, L=25mH, R_G=25Ω, I_{AS}=4.0A

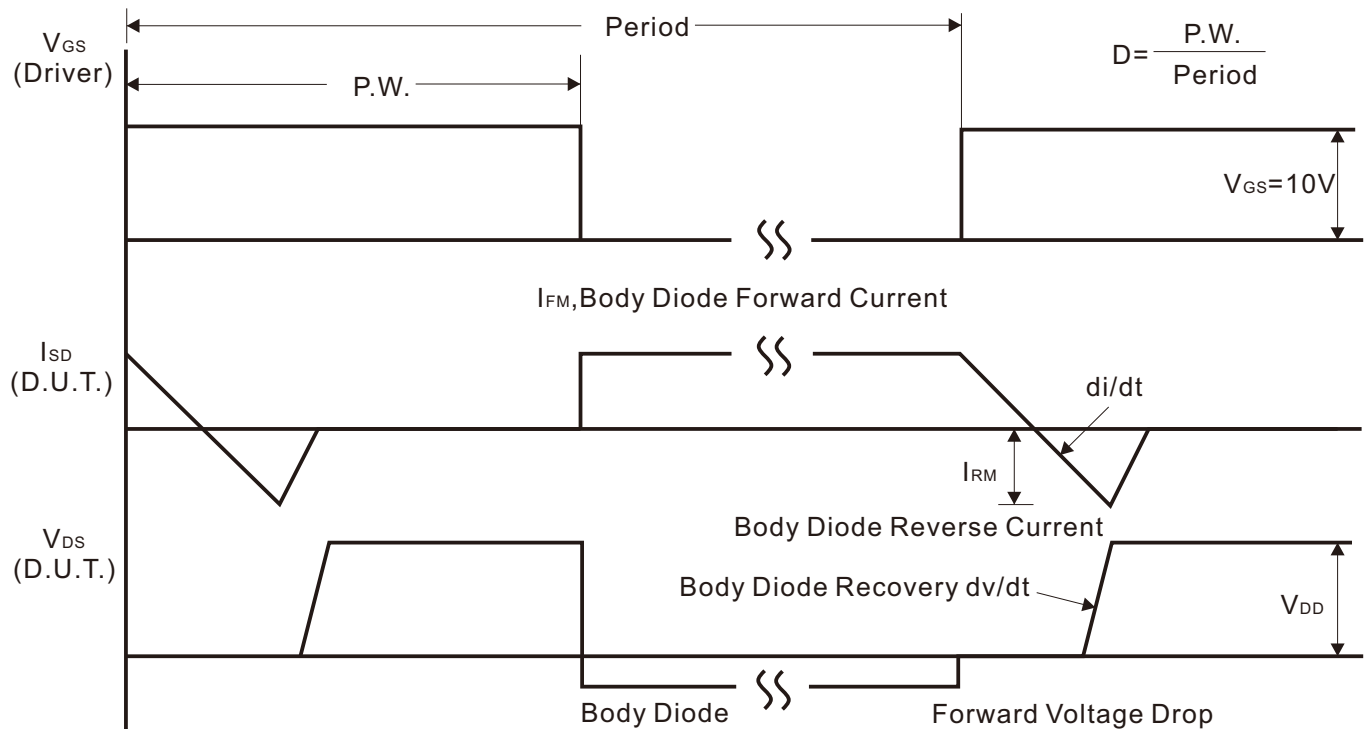
③脉冲测试: 脉冲宽度≤300μs, 占空比≤2%

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

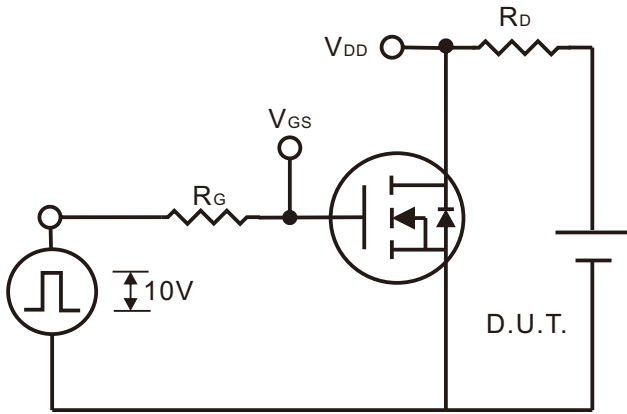
● TEST CIRCUITS AND WAVEFORMS



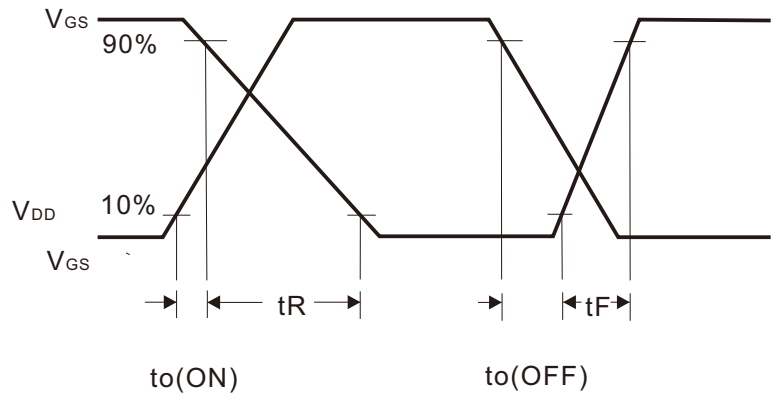
Peak Diode Recovery Test Circuit



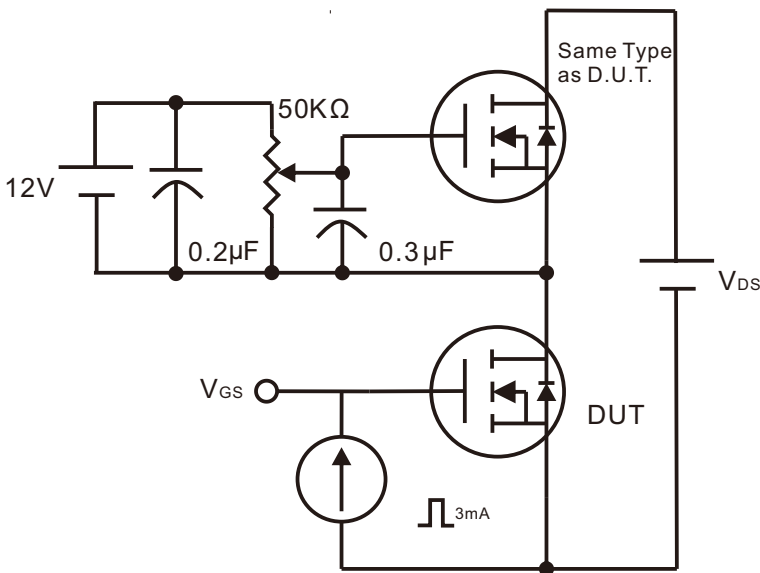
Peak Diode Recovery dv/dt Waveforms



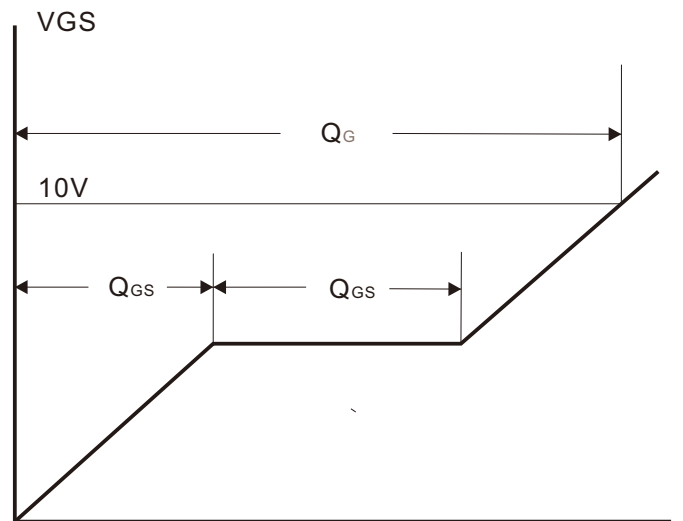
Switching Test Circuit



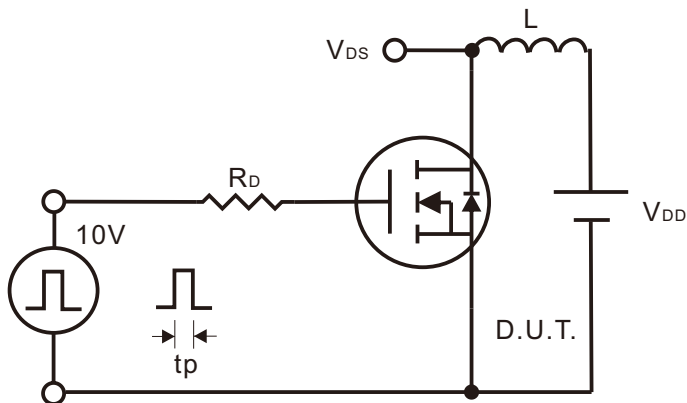
Switching Waveforms



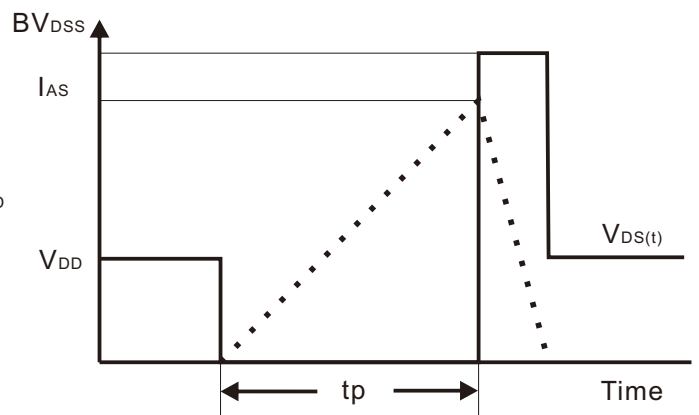
Gate Charge Test Circuit



Gate Charge Waveform



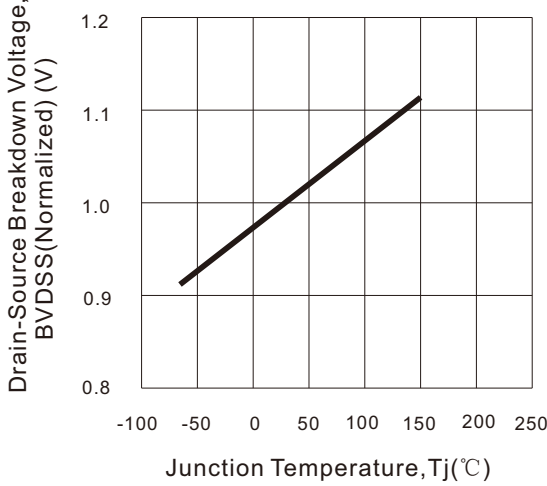
Unclamped Inductive Switching Test Circuit



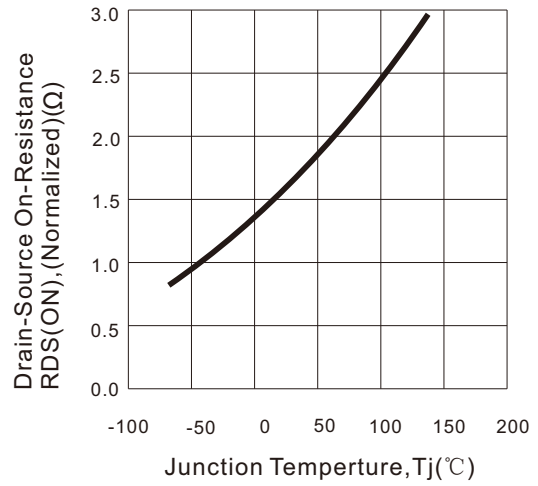
Unclamped Inductive Switching Waveforms

● 特征曲线 TYPICAL CHARACTERISTICS

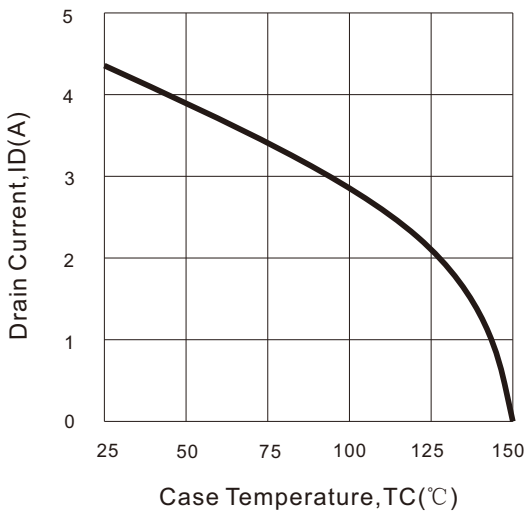
Breakdown Voltage Variation VS. Temperature



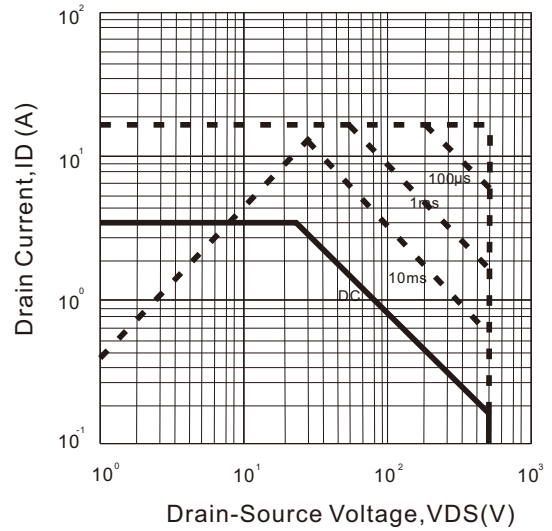
On-Resistance Junction Temperature



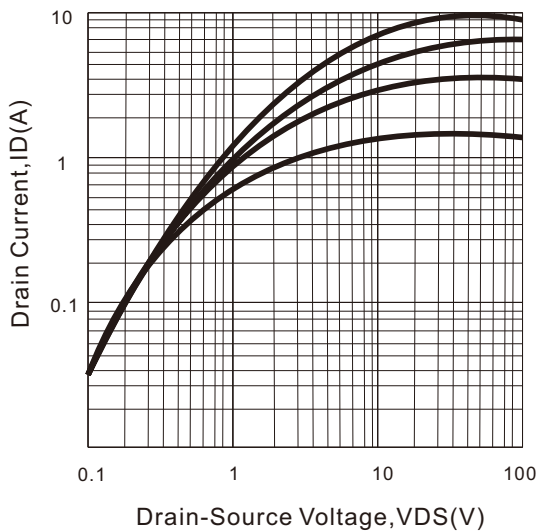
Maximum Drain Current VS. Case Temperature



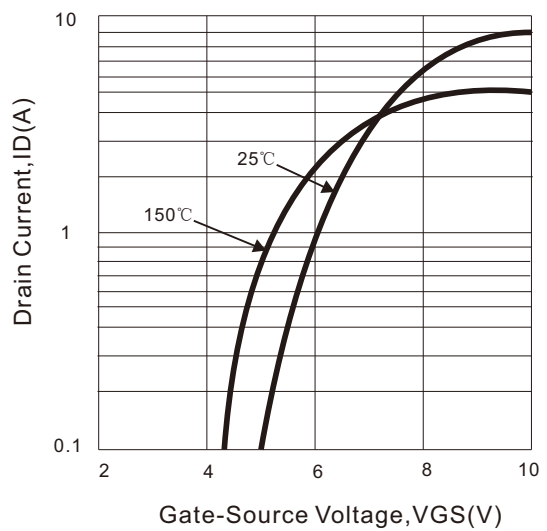
Maximum Safe Operating Area



On-State Characteristics

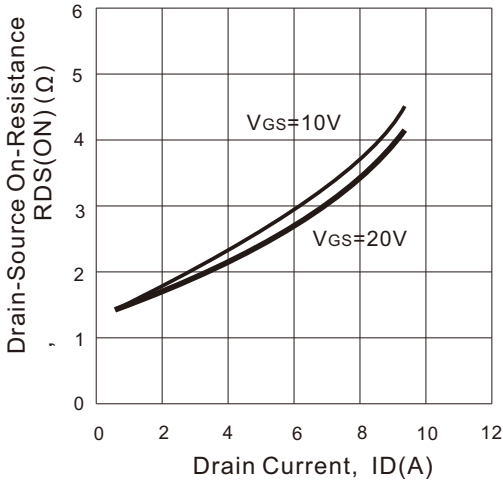


Transfer Characteristics

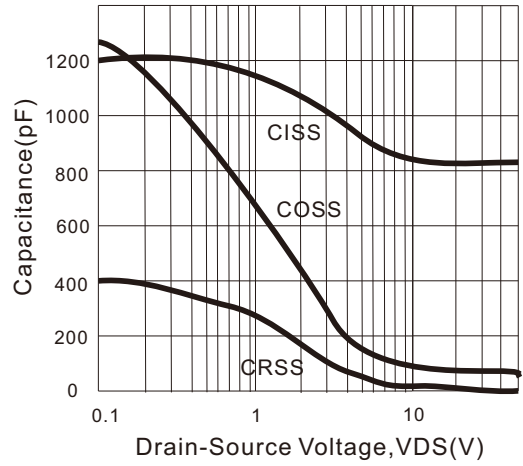


● 特征曲线 TYPICAL CHARACTERISTICS

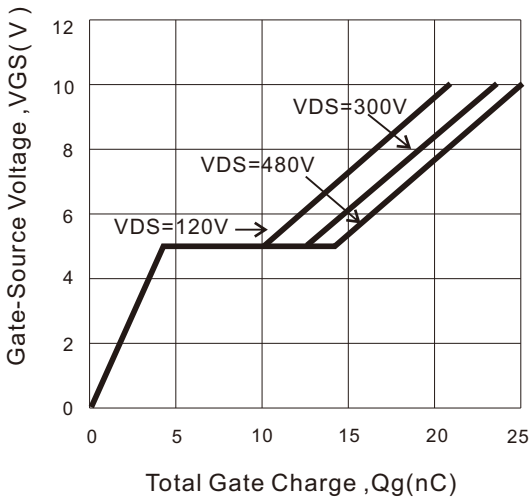
On-Resistance Variation vs. Drain Current and Gate Voltage



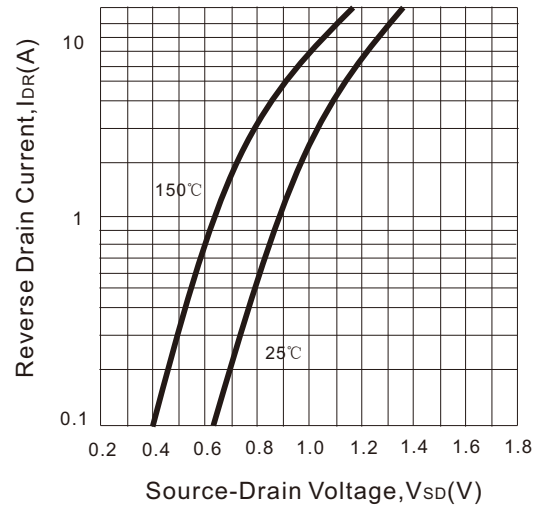
Capacitance Characteristics (Non-Repetitive)



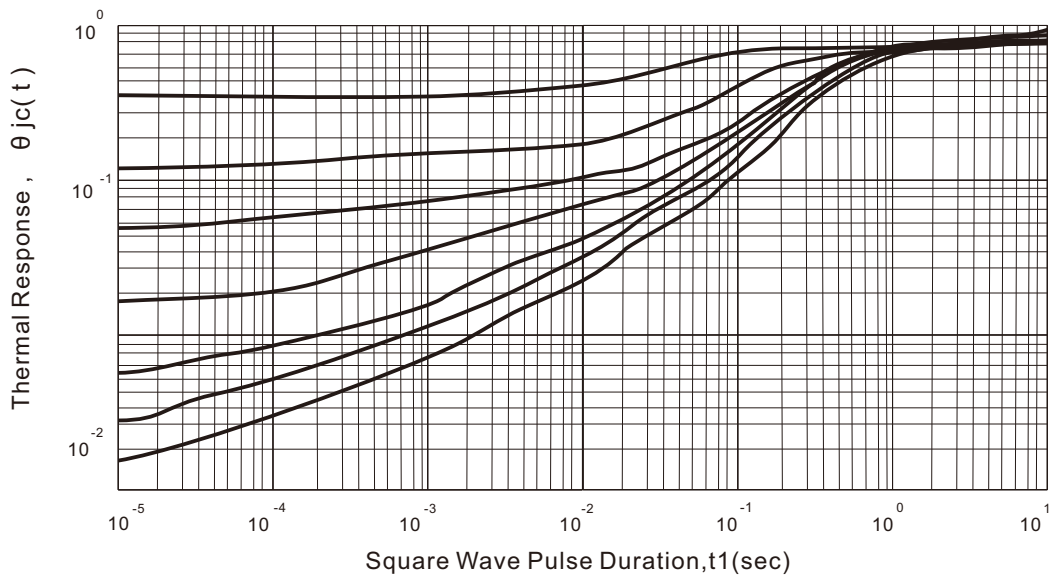
Gate Charge Characteristics

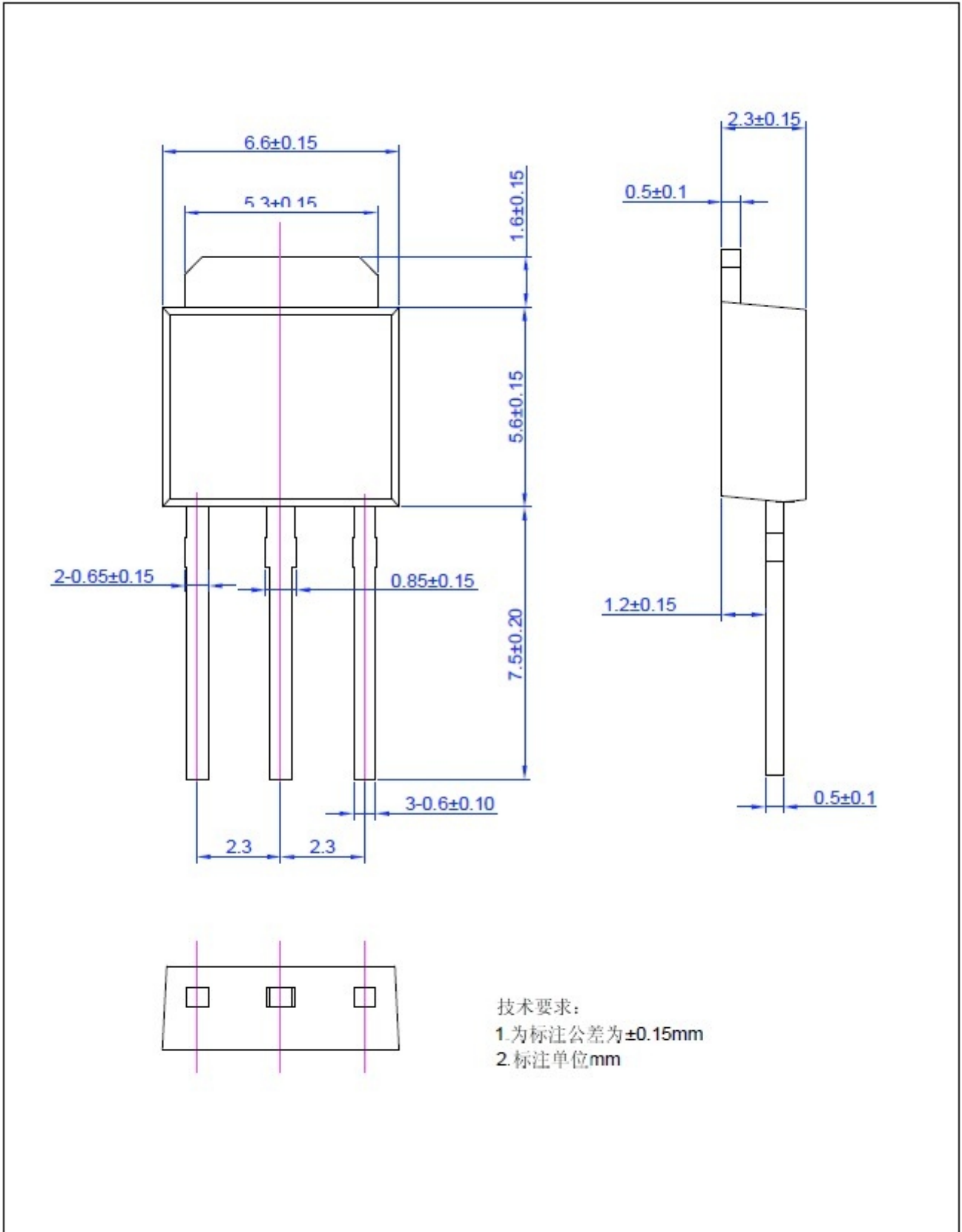


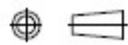
Body Diode Forward Voltage Variation With Source Current and Temperature

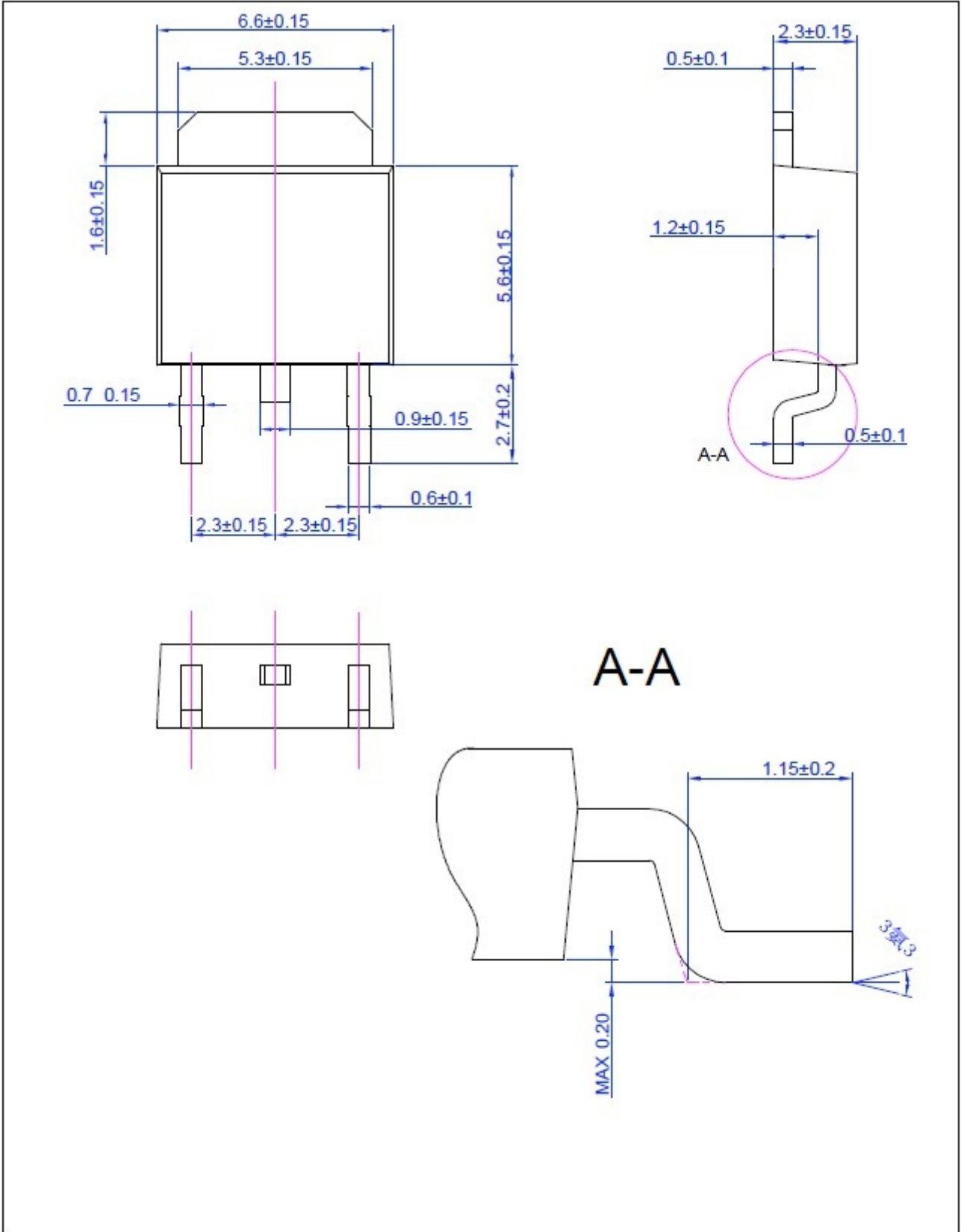


Transient Thermal Response Curve





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		



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		