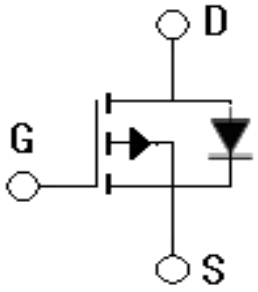
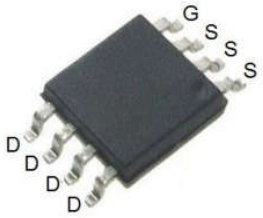
MT20P33A

主要参数 MAIN CHARACTERISTICS

I_D	-10.4A
V_{DSS}	-20V
Rdson-max (@Vgs=-4.5V)	33mΩ
Qg-typ	16.1nC

封装 **Package**





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用途 APPLICATIONS

- 电信与工业领域隔离 DC/DC 转换
- 同步整流领域 DC/DC 与 AC/DC 转换

- Isolated DC/DC Converters in Telecom and Industrial
- Synchronous Rectification in DC/DC and AC/DC Converters

产品特性 FEATURES

- 低栅极电荷
- 低(Rdson)
- 开关速度快
- 产品全部经过雪崩测试
- 高抗 dv/dt 能力
- RoHS 产品

- Low gate charge
- Low Rdson
- Fast switching
- 100% avalanche tested
- Improved dv/dt capability
- RoHS product

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		
N/A	N/A	N/A	MT20P33A-L-AR	MT20P33A	SOP-8

绝对最大额定值 ABSOLUTE RATINGS (Tc=25℃)

项 目 Parameter	符 号 Symbol	数 值 Value	单位 Unit
		MT20P33A	
最高漏极－源极直流电压 Drain-Source Voltage	V_{DSS}	-20	V
连续漏极电流 Drain Current -continuous	I_D T=25℃	-10.4*	A
	I_D T=100℃	-8.32*	A
最大脉冲漏极电流（注 1） Drain Current - pulse （note 1）	I_{DM}	-41.6*	A
最高栅源电压 Gate-Source Voltage	V_{GSS}	±10	V
耗散功率 Power Dissipation	P_D T_C=25℃	5	W
	-Derate above 25℃	0.04	W/℃
最高结温及存储温度 Operating and Storage Temperature Range	T_J，T_{STG}	-55～+150	℃
引线最高焊接温度 Maximum Lead Temperature for Soldering Purposes	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	-20	-	-	V
零栅压下漏极漏电流 Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=-20V,V_{GS}=0V, T_C=25℃	-	-	-1	μA
		V_{DS}=-16V,V_{GS}=0V, T_C=125℃	-	-	-10	μA
正向栅极体漏电流 Gate-body leakage current, forward	I_{GSSF}	V_{DS}=0V,　V_{GS} =10V	-	-	100	nA
反向栅极体漏电流 Gate-body leakage current, reverse	I_{GSSR}	V_{DS}=0V,　V_{GS} =-10V	-	-	-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	-0.3	-0.6	-1	V
静态导通电阻 Static Drain-Source On-Resistance	$R_{DS(ON)}$	V_{GS} =-1.8V ,　I_D=-2A	-	49	65	mΩ
		V_{GS} =-2.5V ,　I_D=-3A	-	37	45	mΩ
		V_{GS} =-4.5V ,　I_D=-4A	-	28	33	mΩ
正向跨导 Forward Transconductance	g_{fs}	V_{DS} = -10V , I_D=-3A （note 3）	-	8.4	-	S
动态特性 Dynamic Characteristics						
输入电容 Input capacitance	C_{iss}	V_{DS}=-15V, V_{GS} =0V, f=1.0MHz	-	1440	-	pF
输出电容 Output capacitance	C_{oss}		-	155	-	pF
反向传输电容 Reverse transfer capacitance	C_{rss}		-	115	-	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}=-10V,I_D=-1A,R_G=25Ω, （note 2，3）	-	8.2	16	ns
上升时间 Turn-On rise time	t_r		-	30	57	ns
延迟时间 Turn-Off delay time	$t_d(off)$		-	71.1	135	ns
下降时间 Turn-Off Fall time	t_f		-	19.8	38	ns
栅极电荷总量 Total Gate Charge	Q_g	V_{DS} =-10V , I_D=-4A V_{GS} =-4.5V （note 2，3）	-	16.1	25	nC
栅－源电荷 Gate-Source charge	Q_{gs}		-	1.8	3	nC
栅－漏电荷 Gate-Drain charge	Q_{gd}		-	3.8	7	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	T_C=25℃	-	-	-10.4	A
正向最大脉冲电流 Maximum Pulsed Drain-Source Diode Forward Current	I_{SM}	T_C=25℃	-	-	-41.6	A
正向压降 Drain-Source Diode Forward Voltage	V_{SD}	T_J=25℃,V_{GS}=0V, I_{SD}=-1A	-	-	-1	V

热特性 THERMAL CHARACTERISTIC

项　　目 **Parameter**	符　号 **Symbol**	最大 **Max** **MT20P33A**	单位 **Unit**
结到管壳的热阻 Thermal Resistance, Junction to Case	$R_{th(j-c)}$	25	℃/W
结到环境的热阻 Thermal Resistance, Junction to Ambient	$R_{th(j-A)}$	85	℃/W

注释：

1：脉冲宽度由最高结温限制

2：脉冲测试：脉冲宽度≤300μs,占空比≤2%

3：基本与工作温度无关

Notes:

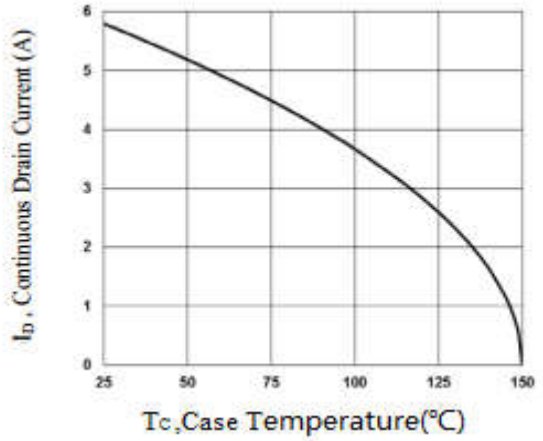
1：Pulse width limited by maximum junction temperature

2：Pulse Test：Pulse Width ≤300μs,Duty Cycle≤2%

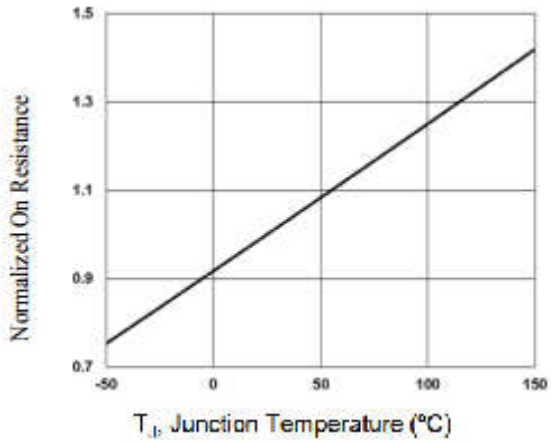
3：Essentially independent of operating temperature

特征曲线 ELECTRICAL CHARACTERISTICS (curves), T_J = 25ºC

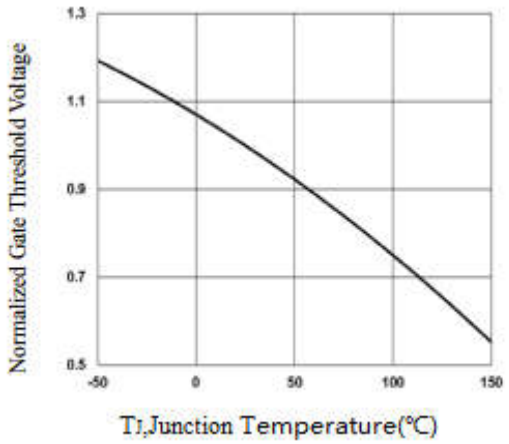
Continuous Drain Current vs.T_C



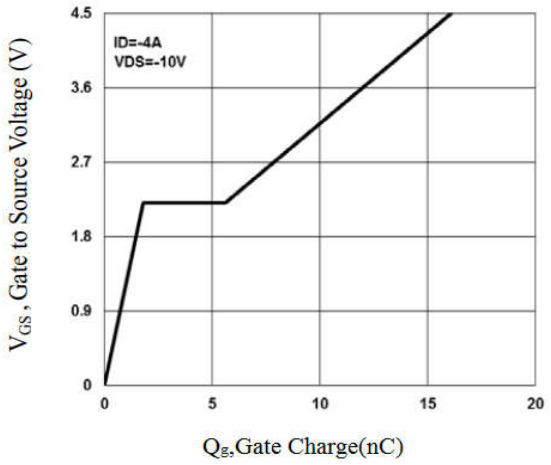
On-Resistance Variation vs. T_J



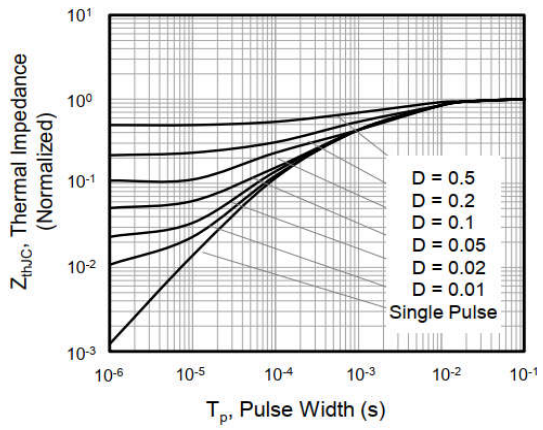
Threshold Voltage vs. T_J



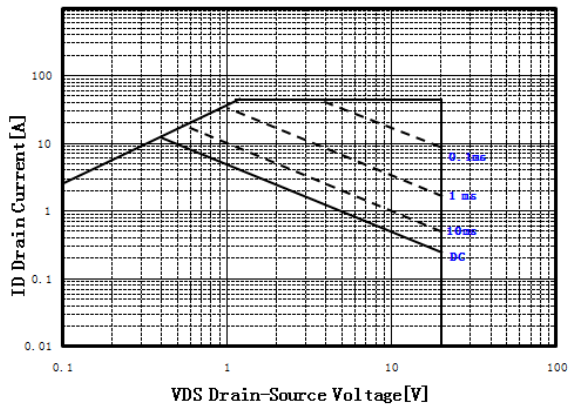
Gate Charge Waveform



Transient Thermal Impedance



Maximum Safe Operation



外形尺寸 PACKAGE MECHANICAL DATA

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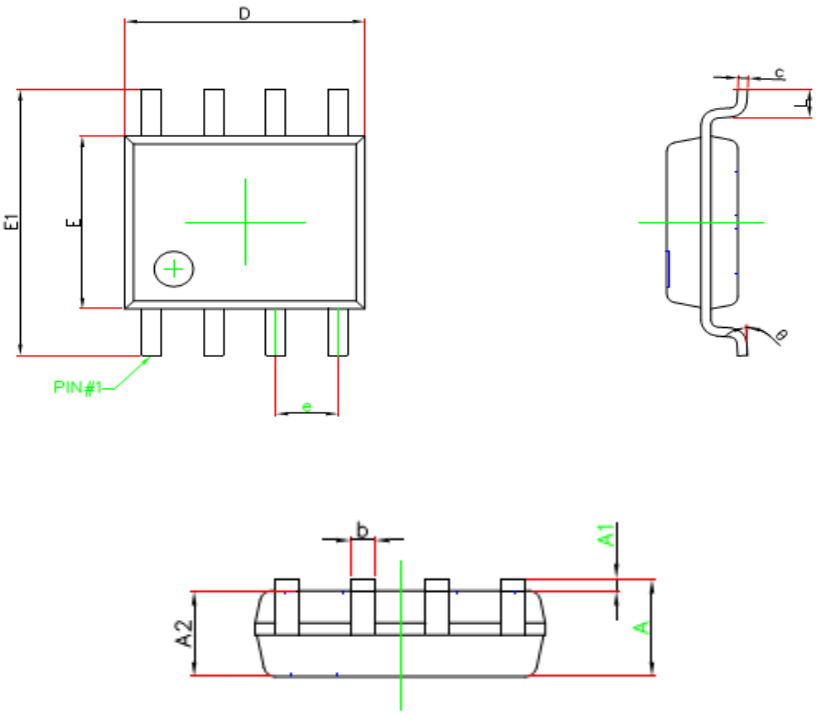
单位 Unit：mm



SYMBOL	MM	
	MIN	MAX
A	1.350	1.750
A1	0.100	0.250
A2	1.350	1.550
b	0.330	0.510
c	0.170	0.250
D	4.800	5.200
E	3.800	4.200
E1	5.800	6.200
e	1.27(TYP)	
L	0.400	1.270
θ	0°	8°

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