N-Channel Enhancement Mode Power MOSFET

Description

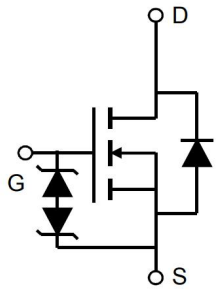
The G01N20RE uses advanced trench technology to provide excellent $R_{DS(ON)}$, low gate charge. It can be used in a wide variety of applications.

General Features

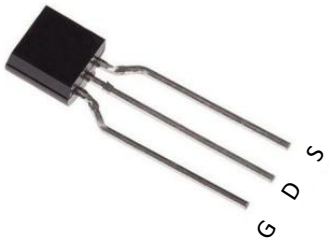
- V_{DS} 200V
- I_D (at V_{GS} = 10V) 1.7A
- $R_{DS(ON)}$ (at V_{GS} = 10V) < 700mΩ
- $R_{DS(ON)}$ (at V_{GS} = 4.5V) < 720mΩ
- 100% Avalanche Tested
- RoHS Compliant
- ESD (HBM) : 2KV

Application

- Power switch
- DC/DC converters



Schematic diagram



TO-92

Ordering Information

Device	Package	Marking	Packaging
G01N20RE	TO-92	G01N20	1000pcs/Carton

Absolute Maximum Ratings T_C = 25ºC, unless otherwise noted

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	200	V
Continuous Drain Current	I_D	1.7	A
Pulsed Drain Current (note1)	I_{DM}	6.8	A
Gate-Source Voltage	V_{GS}	±20	V
Power Dissipation	P_D	3	W
Operating Junction and Storage Temperature Range	T_J, T_{stg}	-55 To 150	ºC

Thermal Resistance

Parameter	Symbol	Value	Unit
Thermal Resistance, Junction-to-Ambient	R_{thJA}	42	ºC/W

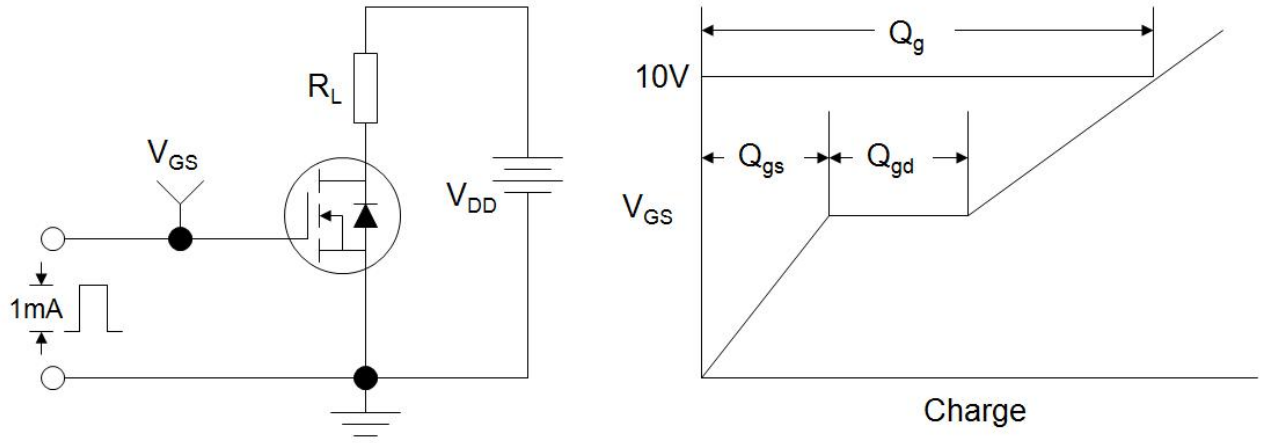
Specifications T_J = 25ºC, unless otherwise noted

Parameter	Symbol	Test Conditions	Value			Unit
			Min.	Typ.	Max.	
Static Parameters						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS} = 0V, I_D = 250μA	200	--	--	V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} = 200V, V_{GS} = 0V	--	--	1	μA
Gate-Source Leakage	I_{GSS}	V_{GS} = ±20V	--	--	±30	uA
Gate-Source Threshold Voltage	$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = 250μA	1.0	1.9	2.5	V
Drain-Source On-Resistance	$R_{DS(on)}$	V_{GS} = 10V, I_D = 1A	--	550	700	mΩ
		V_{GS} = 4.5V, I_D = 1A	--	560	720	
Forward Transconductance	g_{FS}	V_{GS} = 5V, I_D = 1A	--	8	--	S
Dynamic Parameters						
Input Capacitance	C_{iss}	V_{GS} = 0V, V_{DS} = 100V, f = 1.0MHz	--	566	--	pF
Output Capacitance	C_{oss}		--	12	--	
Reverse Transfer Capacitance	C_{rss}		--	10	--	
Total Gate Charge	Q_g	V_{DD} = 100V, I_D = 1A, V_{GS} = 10V	--	12	--	nC
Gate-Source Charge	Q_{gs}		--	2.5	--	
Gate-Drain Charge	Q_{gd}		--	4	--	
Turn-on Delay Time	$t_{d(on)}$	V_{DD} = 100V, I_D = 1A, R_G = 2.5Ω	--	10	--	ns
Turn-on Rise Time	t_r		--	12	--	
Turn-off Delay Time	$t_{d(off)}$		--	15	--	
Turn-off Fall Time	t_f		--	15	--	
Drain-Source Body Diode Characteristics						
Continuous Body Diode Current	I_S	T_C = 25ºC	--	--	1.7	A
Body Diode Voltage	V_{SD}	T_J = 25ºC, I_{SD} = 1A, V_{GS} = 0V	--	--	1.2	V
Reverse Recovery Charge	Qrr	I_F = 1A, V_{GS} = 0V di/dt=100A/us	--	0.65	--	μC
Reverse Recovery Time	Trr		--	161	--	ns

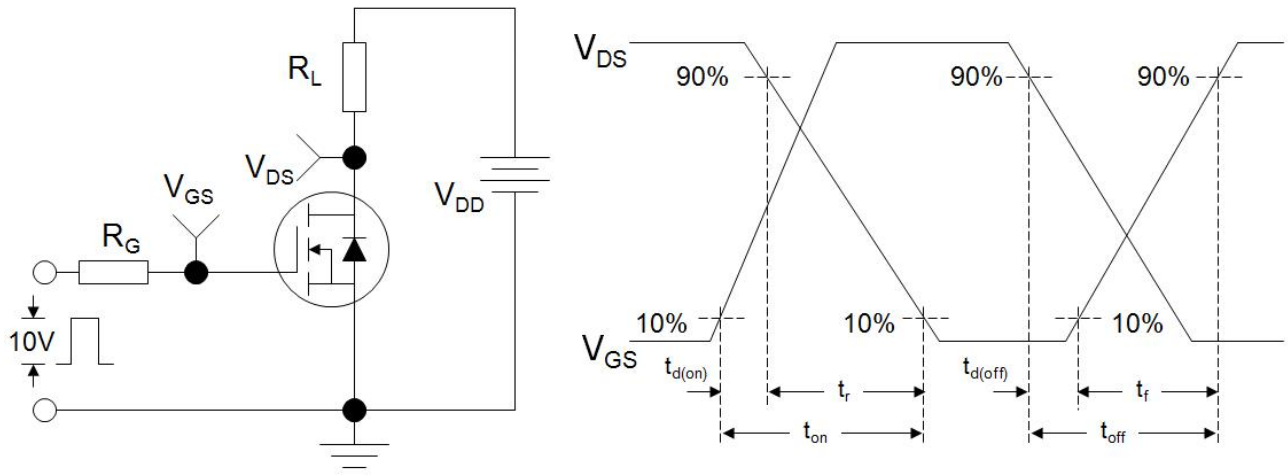
Notes

1. Repetitive Rating: Pulse width limited by maximum junction temperature
2. Identical low side and high side switch with identical R_G

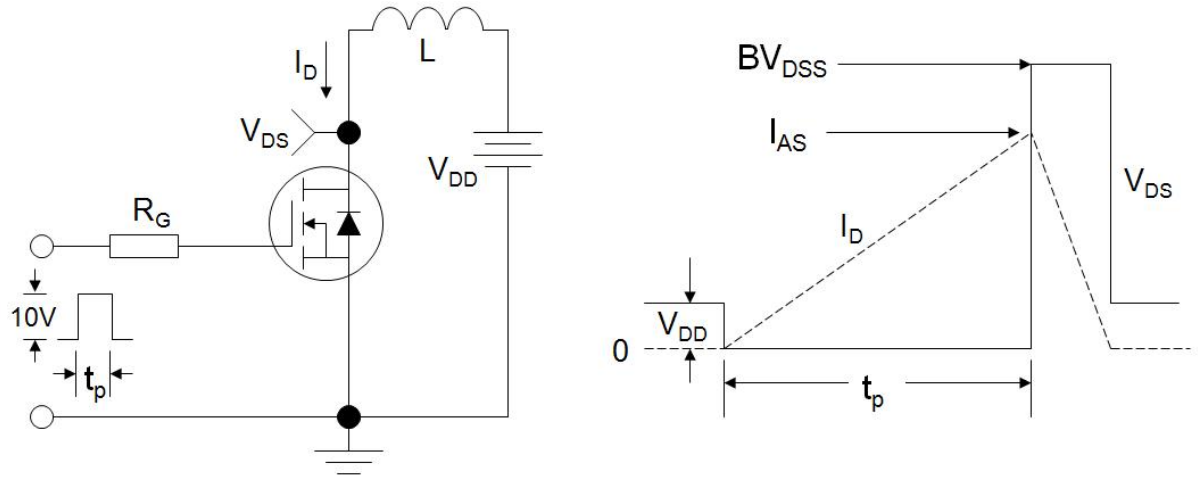
Gate Charge Test Circuit



Switch Time Test Circuit



EAS Test Circuit



Typical Characteristics T_J = 25ºC, unless otherwise noted

Figure 1. Output Characteristics

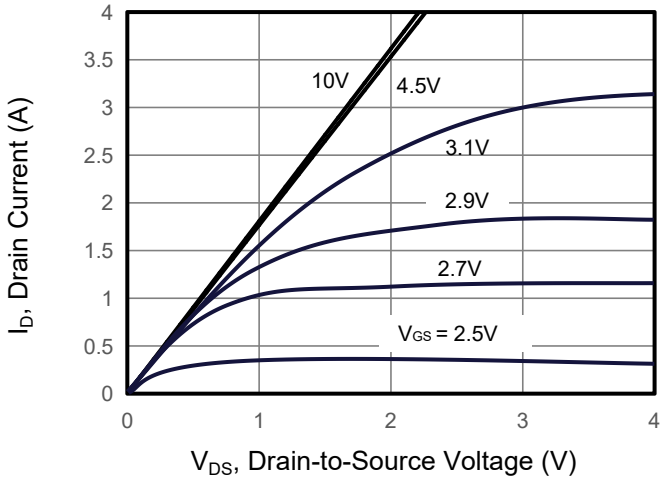


Figure 2. Transfer Characteristics

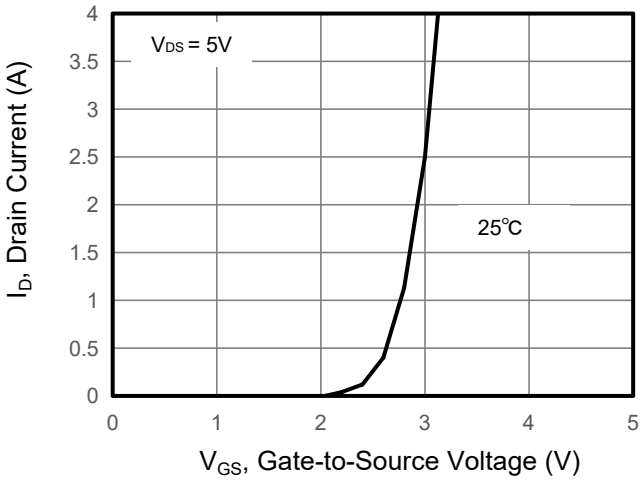


Figure 3. Drain Source On Resistance

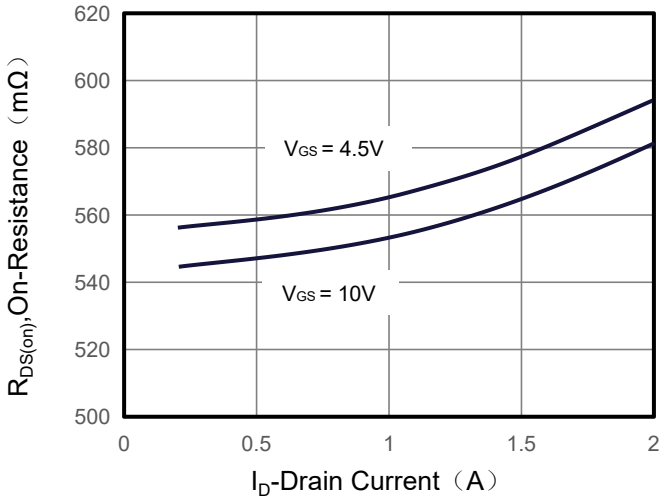


Figure 4. Gate Charge

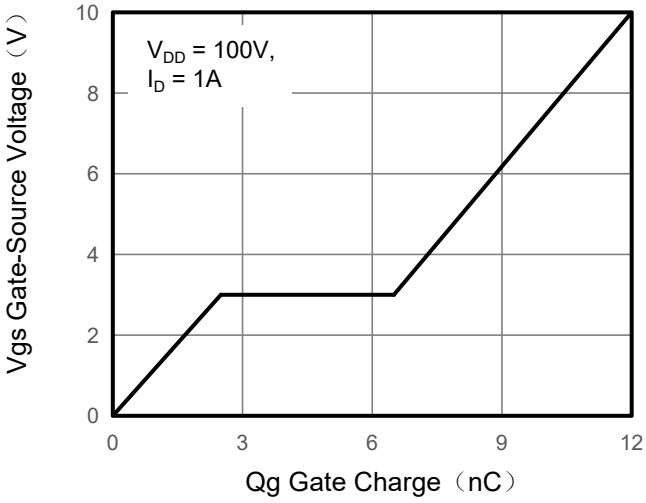


Figure 5. Capacitance

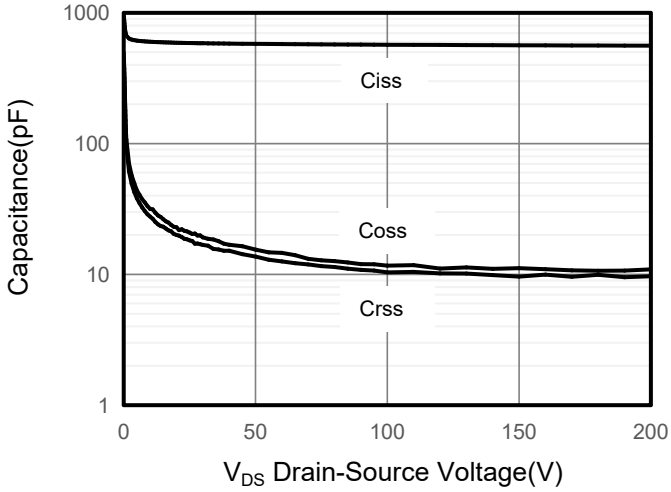
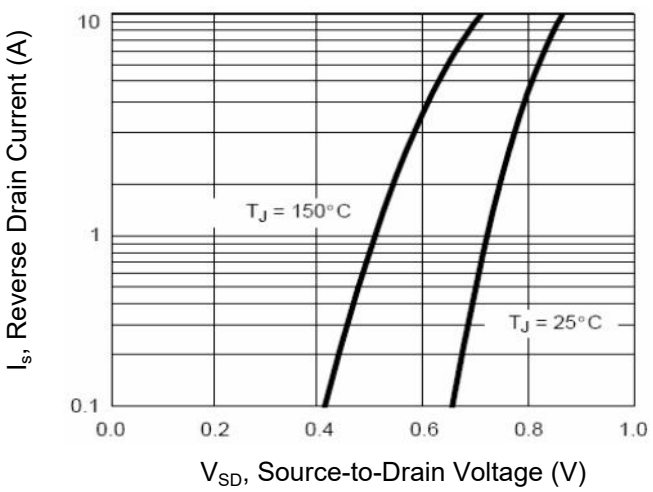


Figure 6. Source-Drain Diode Forward



Typical Characteristics T_J = 25ºC, unless otherwise noted

Figure 7. Drain-Source On-Resistance

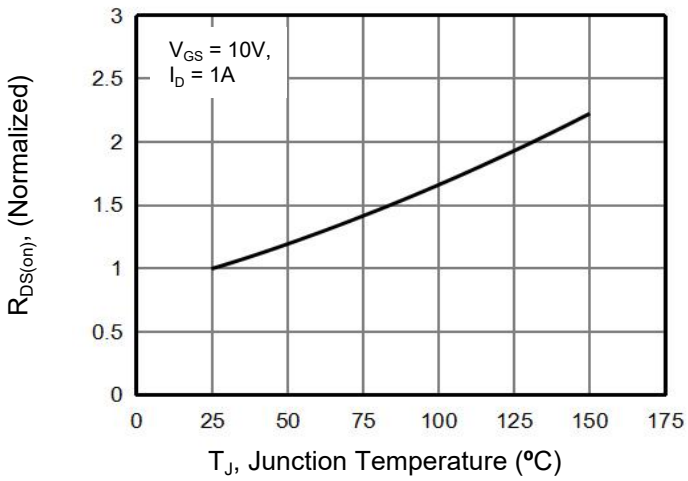


Figure 8. Safe Operation Area

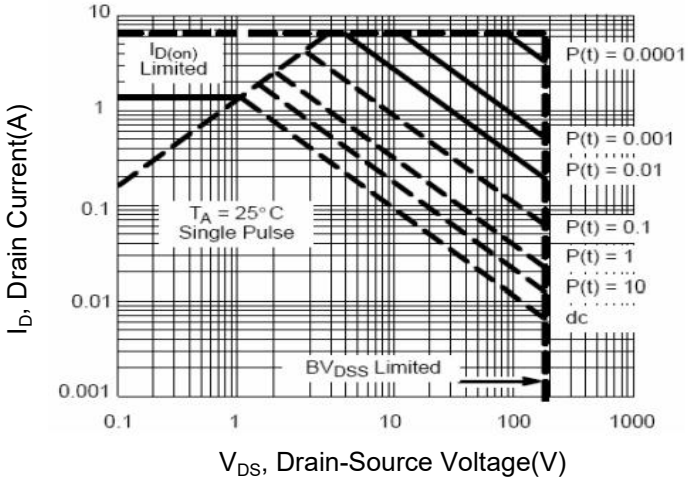
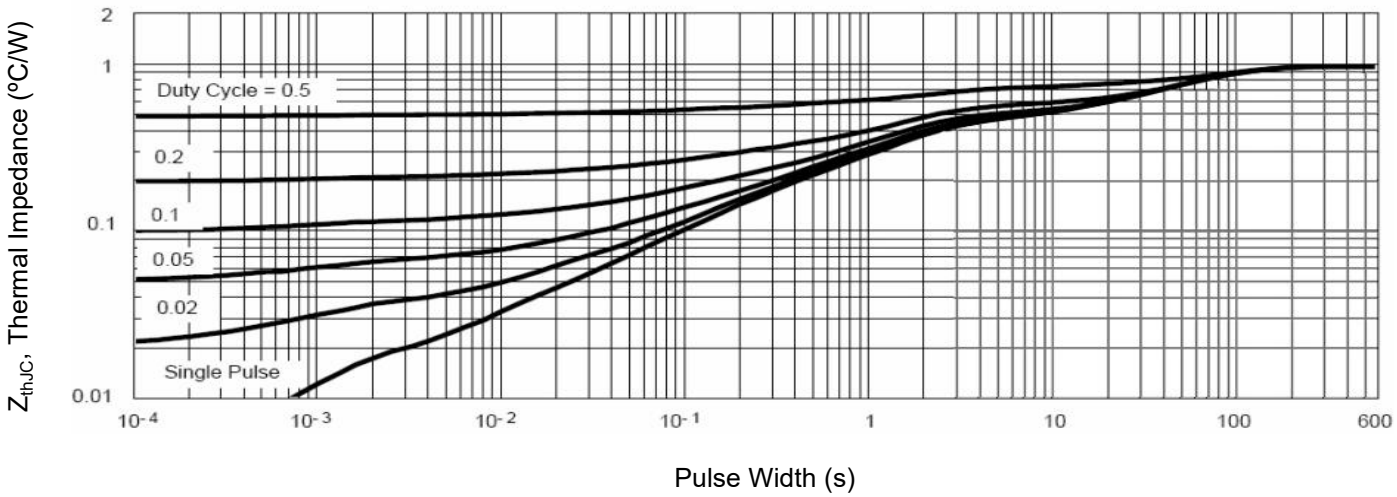
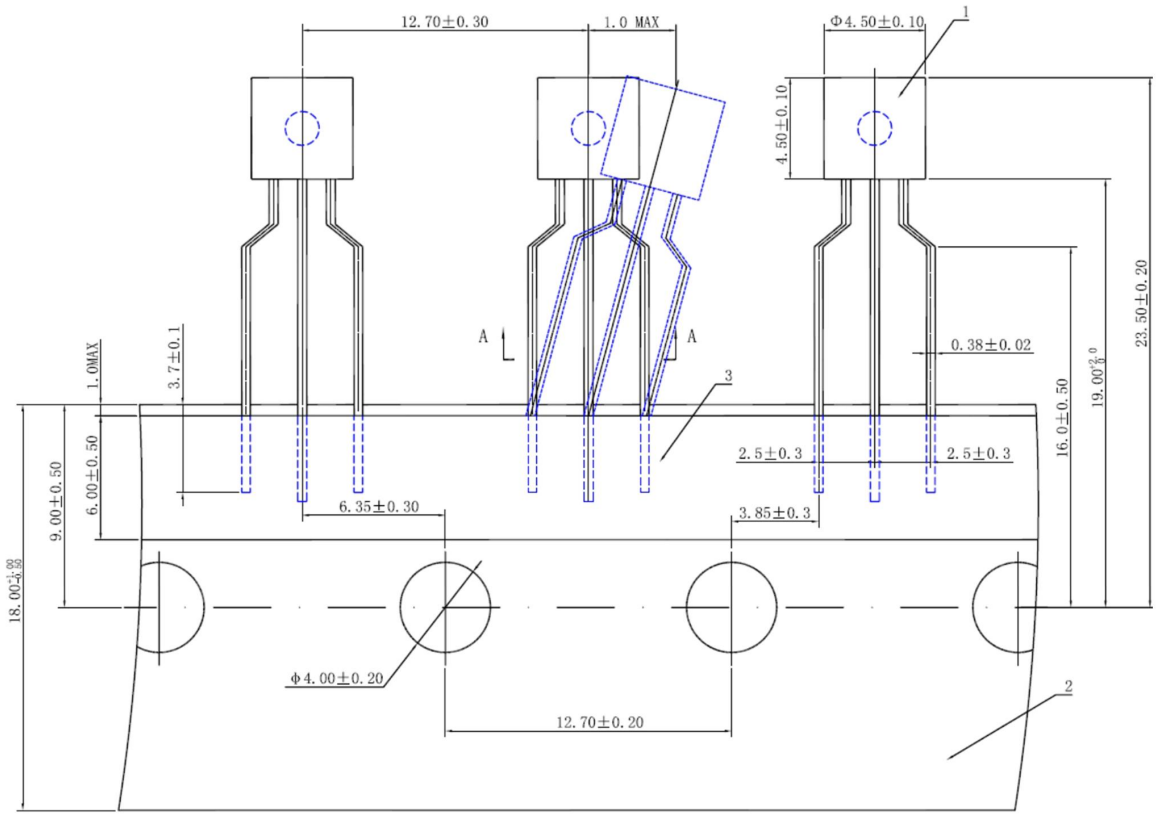
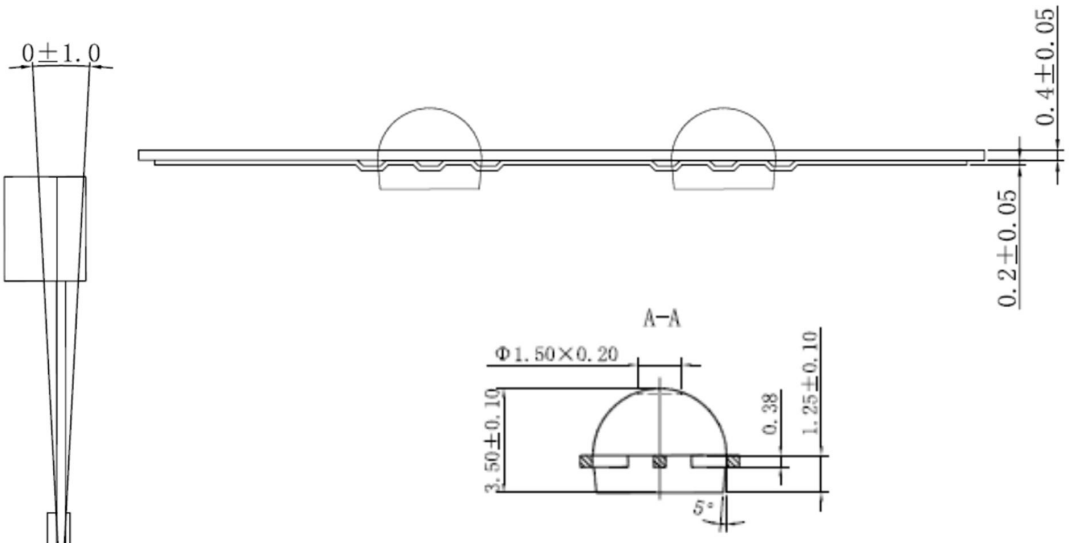


Figure 9. Normalized Maximum Transient Thermal Impedance



TO-92 Package Information





技术要求：

1.管子与编带纸的位置水平方向偏管脚中心
1.0MAX，前后偏管脚中心2.0MAX；
2.管脚成行时，弯脚处不严重损伤镀锡层；
3.编带用的纸带为0.4X18.0牛皮纸带，
盖带为：0.2X6.0热熔性粘带；
4.所有尺寸为mm。