Lastinght

JH5N20

★ Green Device Available
★ Super Low Gate Charge
★ Excellent Cdv/dt effect decline
★ Advanced high cell density Trench technology

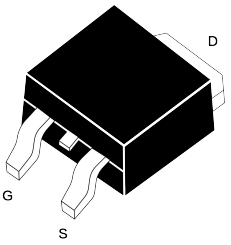
Product Summary

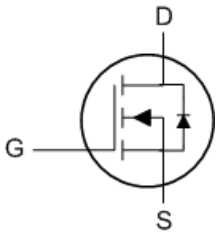
BVDSS	RDSON	ID
200V	450mΩ	5.5A

Description

The JH5N20 is the high cell density trenched N-ch MOSFETs, which provides excellent RDSON and efficiency for most of the small power switching and load switch applications.
The JH5N20 meet the RoHS and Green Product requirement with full function reliability approved.

TO-252 Pin Configuration





Absolute Maximum Ratings:

Symbol	Parameter		Value	Units
V_{DSS}	Drain-to-Source Voltage		200	V
I_D	Continuous Drain Current	T_C = 25 °C	5.5	A
I_{DM}[a1]	Pulsed Drain Current		22	A
V_{GS}	Gate-to-Source Voltage		±20	V
P_D	Power Dissipation		30	W
T_J, T_{STG}	Operating Junction and Storage Temperature Range		150, –55 to 150	℃
T_L	Maximum Temperature for Soldering		260	℃

Thermal Characteristics:

Symbol	Parameter	Value	Units
$R_{\theta JA}$	Thermal Resistance, Junction-to-Ambient	4.17	℃/W

Electrical Characteristics (TA= 25℃ unless otherwise specified):

Static Characteristics						
Symbol	Parameter	Test Conditions	Value			Units
			Min.	Typ.	Max.	
V_{DSS}	Drain to Source Breakdown Voltage	V_{GS}=0V, I_D=250μA	200	--	--	V
I_{DSS}	Drain to Source Leakage Current	V_{DS}=200V, V_{GS}=0V	--	--	1	μA
$I_{GSS(F)}$	Gate to Source Forward Leakage	V_{GS}=+20V, V_{DS}=0V	--	--	100	nA
$I_{GSS(R)}$	Gate to Source Reverse Leakage	V_{GS}=-20V, V_{DS}=0V	--	--	-100	nA
$V_{GS(TH)}$	Gate Threshold Voltage	V_{DS}=V_{GS}, I_D=250μA	1	2	3	V
$R_{DS(ON)}$	Drain-to-Source On-Resistance	V_{GS}=10V, I_D=2A	--	450	550	mΩ

Dynamic Characteristics						
Symbol	Parameter	Test Conditions	Value			Units
			Min.	Typ.	Max.	
C_{iss}	Input Capacitance	V_{GS} = 0V V_{DS} = 100V f = 1.0MHz	--	461	--	pF
C_{oss}	Output Capacitance		--	11.6	--	
C_{rss}	Reverse Transfer Capacitance		--	8.5	--	
R_g	Gate resistance	V_{GS}=0V,V_{DS} Open	--	1.35	--	Ω

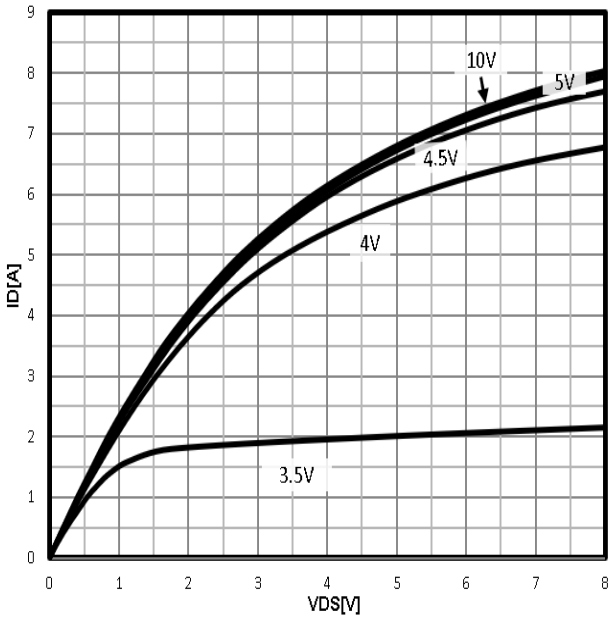
Resistive Switching Characteristics						
Symbol	Parameter	Test Conditions	Value			Units
			Min.	Typ.	Max.	
$t_{d(ON)}$	Turn-on Delay Time	I_D =2A V_{DS} = 100V V_{GS} = 10V R_G = 4Ω	--	6	--	ns
tr	Rise Time		--	7	--	
$t_{d(OFF)}$	Turn-Off Delay Time		--	17	--	
t_f	Fall Time		--	8	--	
Q_g	Total Gate Charge	V_{GS} =10V V_{DS} = 100V I_D =2A	--	11.4	--	nC
Q_{gs}	Gate Source Charge		--	1.75	--	
Q_{gd}	Gate Drain Charge		--	2.9	--	

Source-Drain Diode Characteristics						
Symbol	Parameter	Test Conditions	Value			Value
			Min.	Typ.	Max.	
I_S	Diode Forward Current	T_C =25 °C	--	--	5.5	A
V_{SD}	Diode Forward Voltage	I_S=2A, V_{GS}=0V	--	--	1.2	V
t_{rr}	Reverse Recovery time	I_S=2A, V_{DD}=100V dI/dt=100A/μs	--	75	--	ns
Q_{rr}	Reverse Recovery Charge		--	198	--	nC

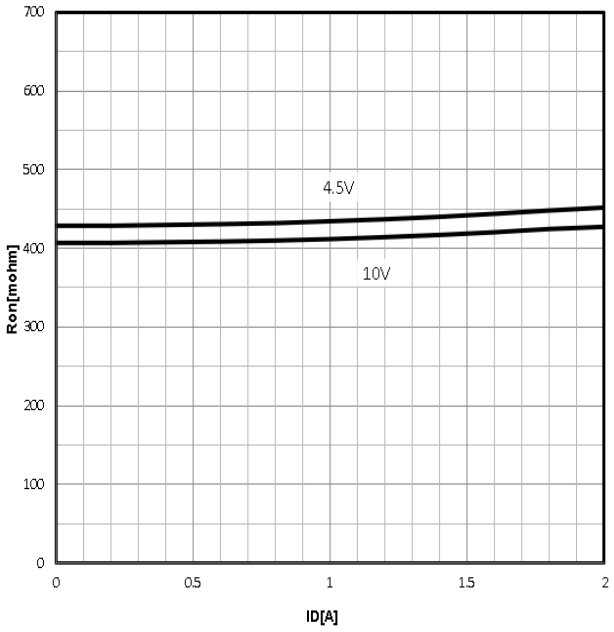
[a1]: Repetitive rating; pulse width limited by maximum junction temperature

Characteristics Curve:

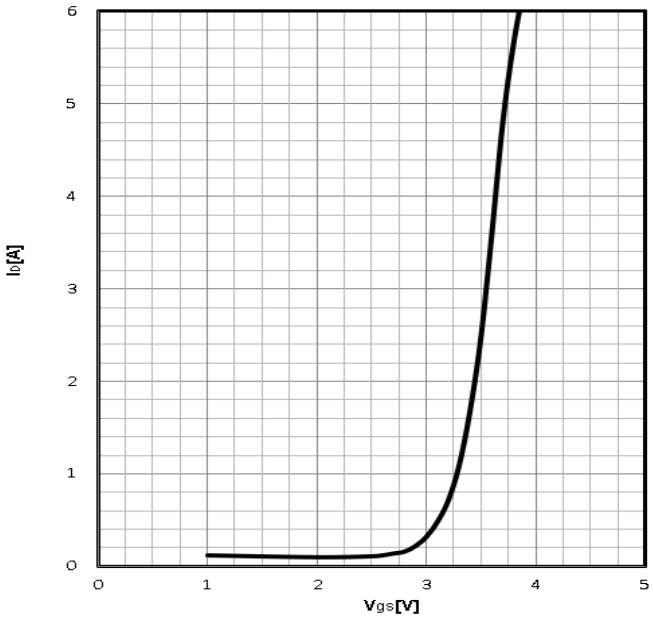
Typ. output characteristics
$I_D=f(V_{DS})$



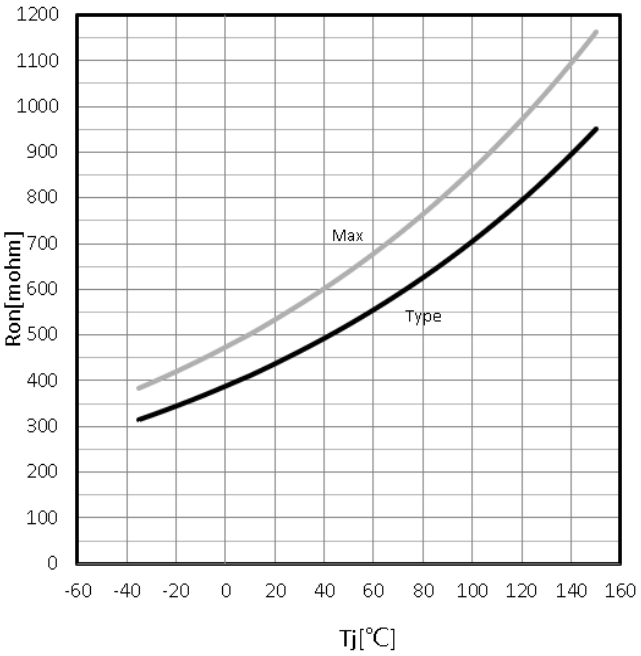
Typ. drain-source on resistance
$R_{DS(on)}=f(I_D)$



Typ. transfer characteristics
$I_D=f(V_{GS})$

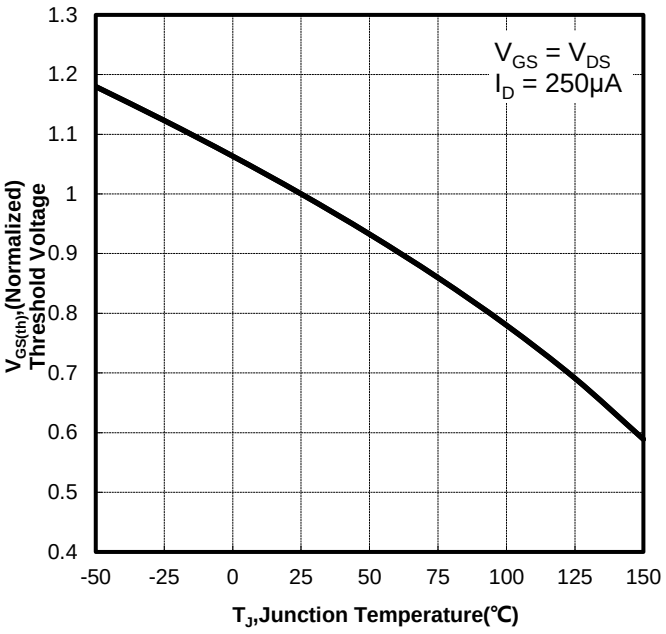


Drain-source on-state resistance
$R_{DS(on)}=f(T_j);I_D=2A;\ V_{GS}=10V$



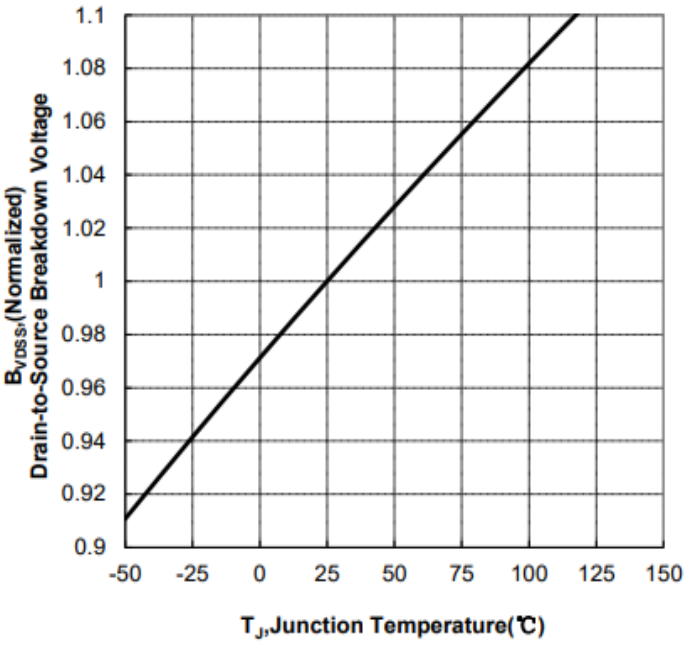
Gate Threshold Voltage

$V_{TH}=f(T_j)$; $I_D=250uA$



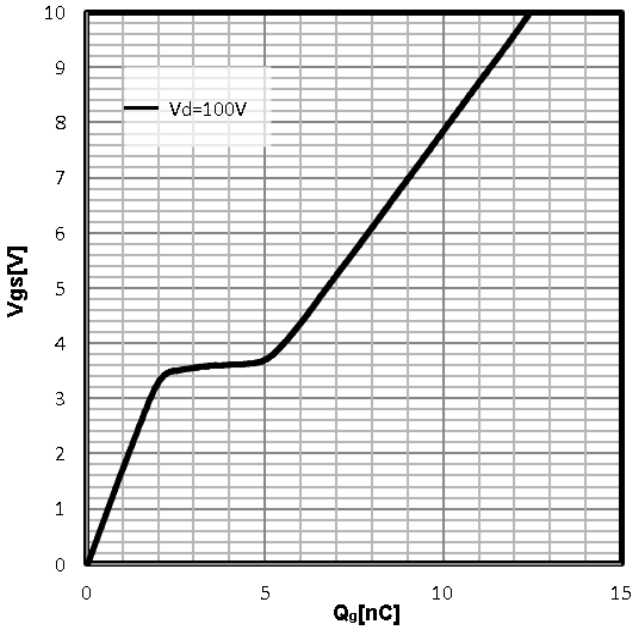
Drain-source breakdown voltage

$V_{BR(DSS)}=f(T_j)$; $I_D=250uA$



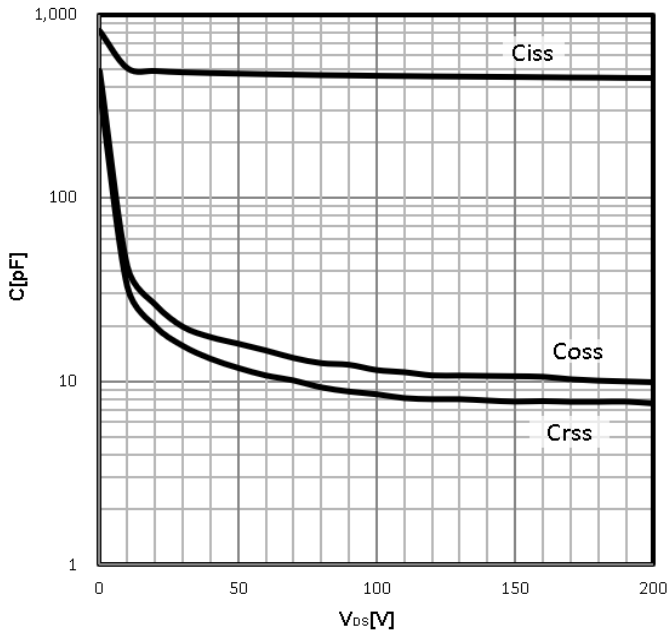
Typ. gate charge

$V_{GS}=f(Q_g)$; $I_D=2A$



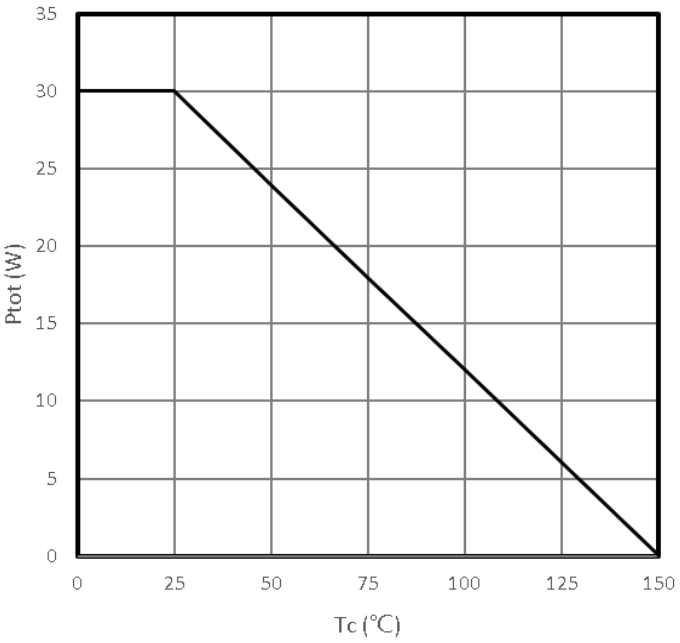
Typ. capacitances

$C=f(V_{DS})$; $V_{GS}=0V$; $f=1MHz$



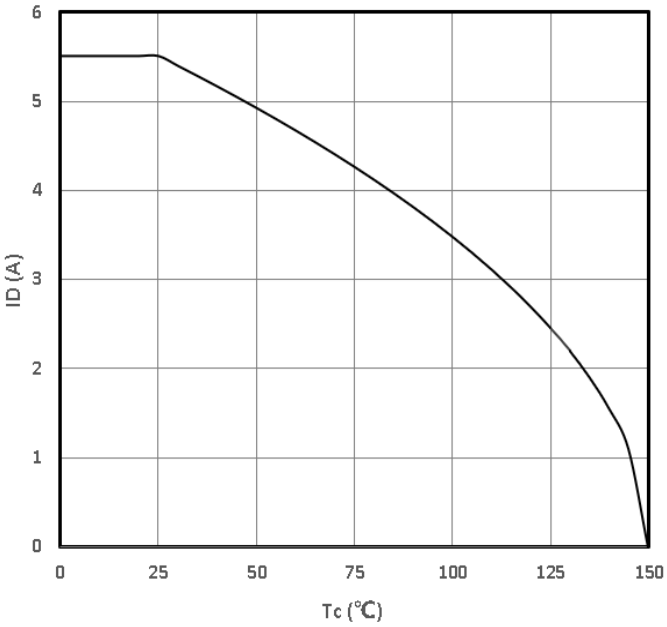
Power Dissipation

$P_{tot}=f(T_C)$



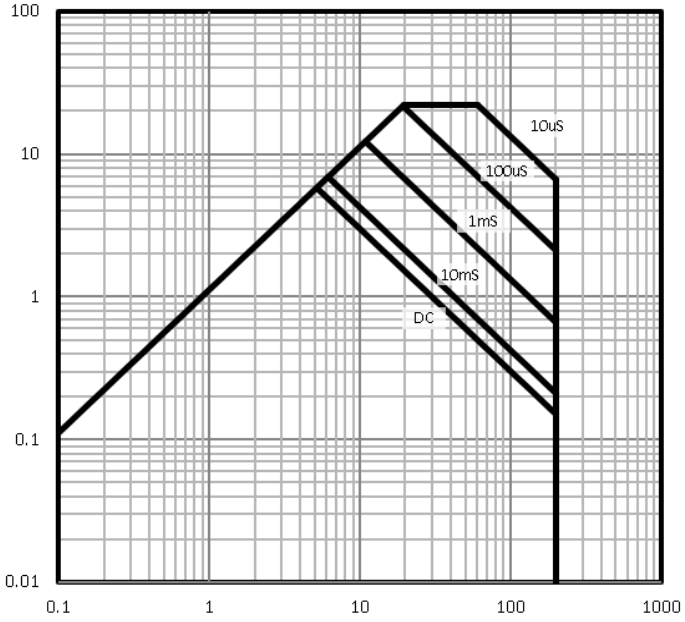
Maximum Drain Current

$I_D=f(T_C)$



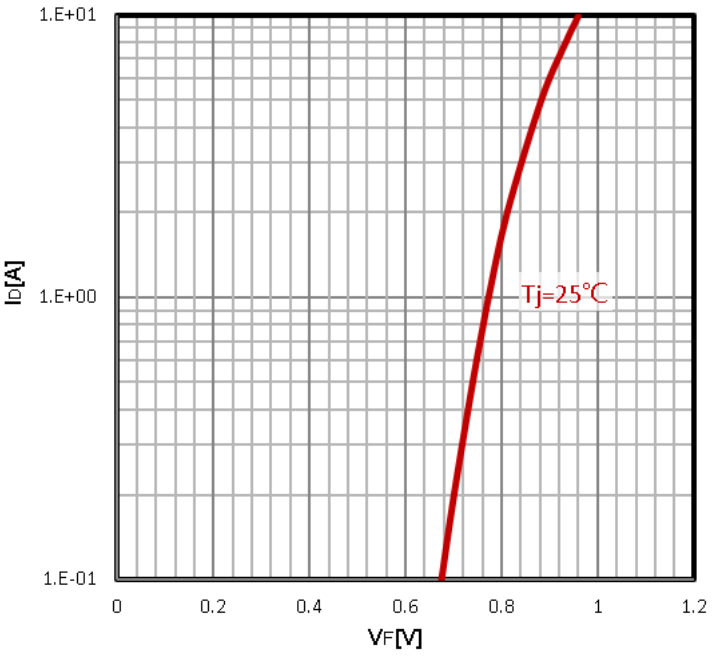
Safe operating area

$I_D=f(V_{DS})$



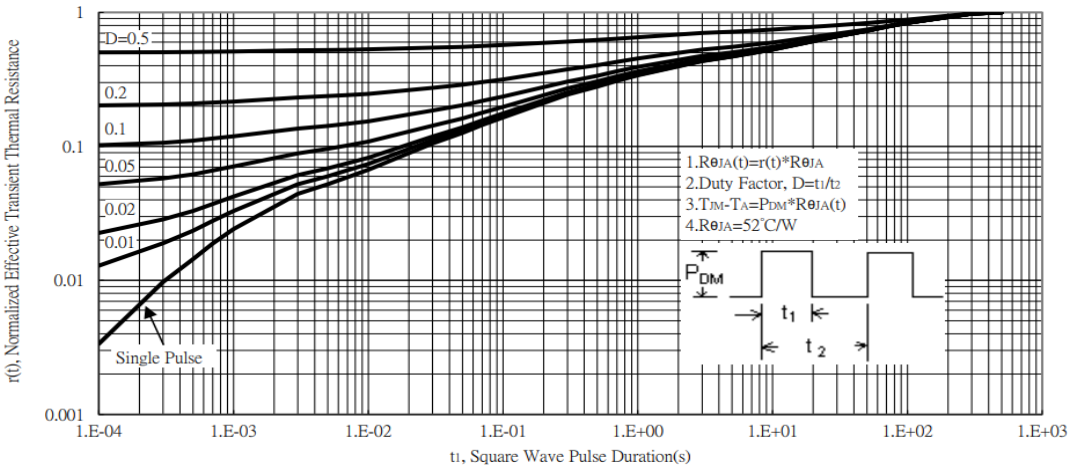
Body Diode Forward Voltage Variation

$I_F=f(V_{GS})$

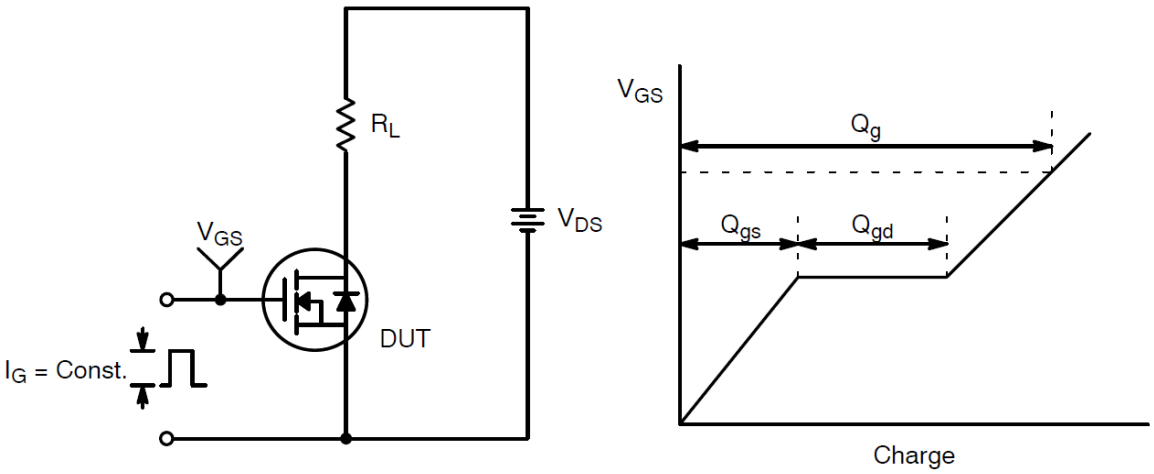


Max. transient thermal impedance

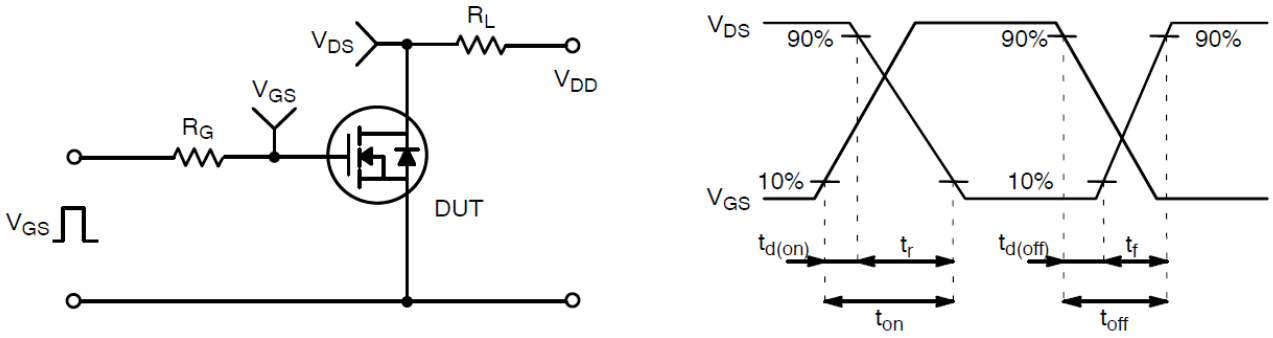
$Z_{thJC}=f(t_p)$



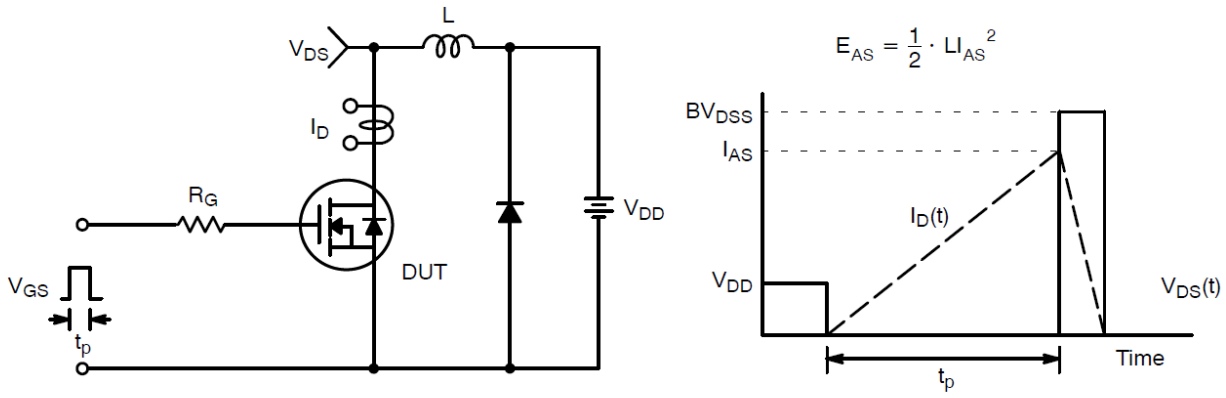
Test Circuit and Waveform:



Gate Charge Test Circuit & Waveform



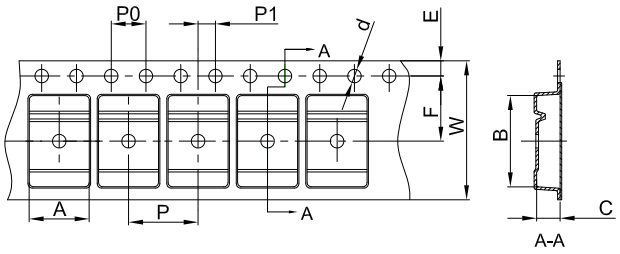
Resistive Switching Test Circuit & Waveforms



Unclamped Inductive Switching Test Circuit & Waveforms

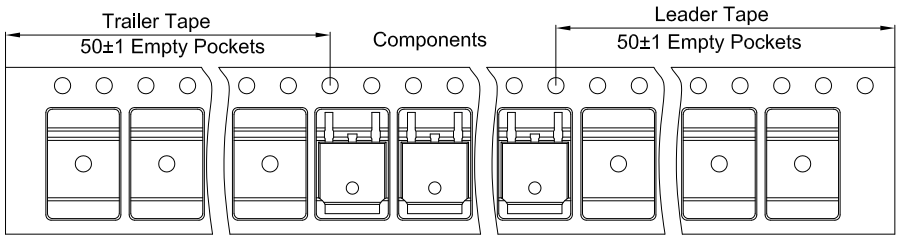
TO-252-2L Tape and Reel

TO-252 Embossed Carrier Tape

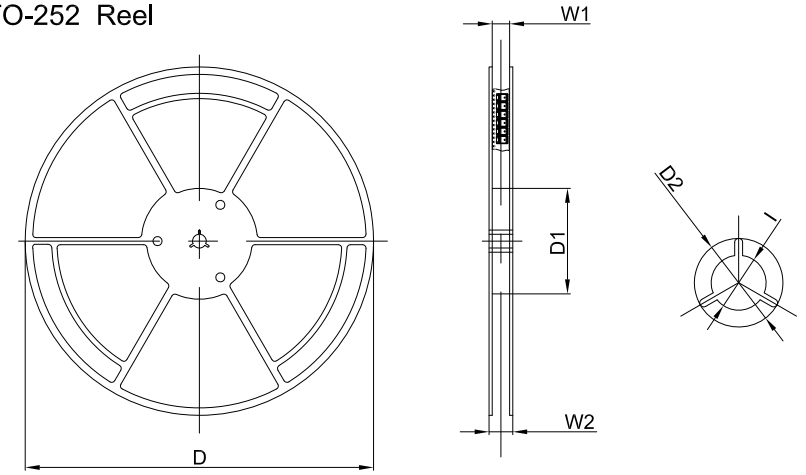


Dimensions are in millimeter										
Pkg type	A	B	C	d	E	F	P0	P	P1	W
TO-252	6.90	10.50	2.70	Ø1.55	1.75	7.50	4.00	8.00	2.00	16.00

TO-252 Tape Leader and Trailer

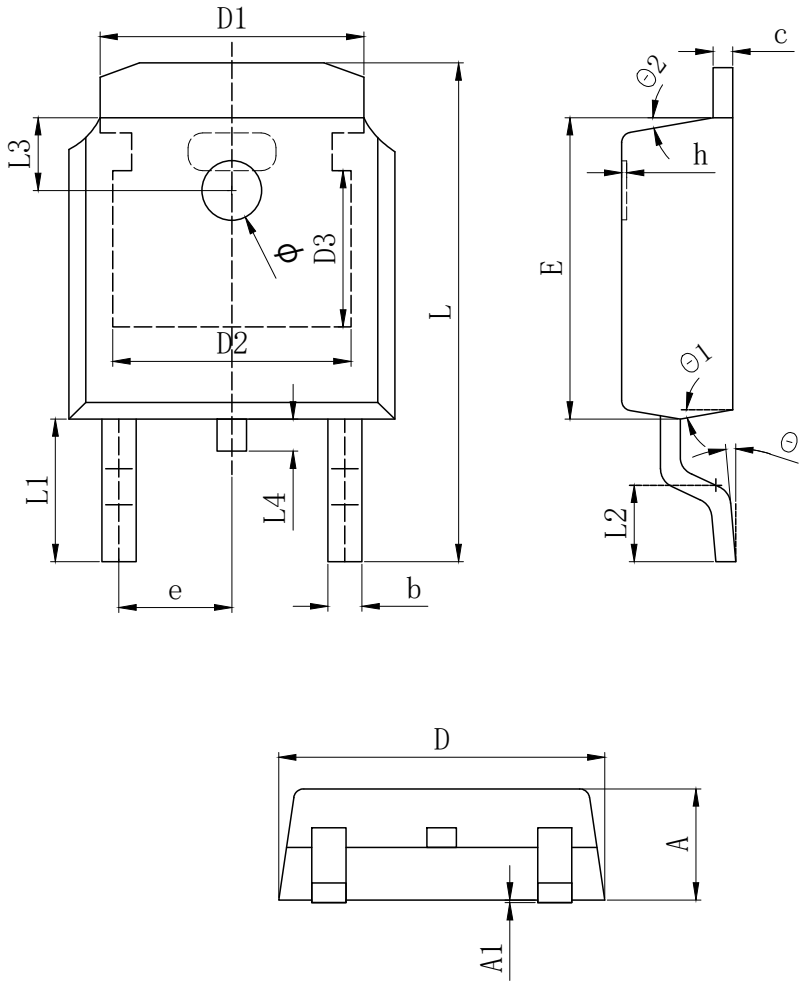


TO-252 Reel



Dimensions are in millimeter						
Reel Option	D	D1	D2	W1	W2	I
13"Dia	330.00	100.00	Ø21.00	16.40	21.00	Ø13.00

REEL	Reel Size	Box	Box Size(mm)	Carton	Carton Size(mm)	G.W.(kg)
2,500 pcs	13inch	2,500 pcs	340×336×29	25,000 pcs	353×346×365	



SYMBOL	MILLIMETER		
	MIN	Typ.	MAX
A	2.200	2.300	2.400
A1	0.000		0.127
b	0.640	0.690	0.740
c(电镀后)	0.460	0.520	0.580
D	6.500	6.600	6.700
D1	5.334 REF		
D2	4.826 REF		
D3	3.166 REF		
E	6.000	6.100	6.200
e	2.286 TYP		
h	0.000	0.100	0.200
L	9.900	10.100	10.300
L1	2.888 REF		
L2	1.400	1.550	1.700
L3	1.600 REF		
L4	0.600	0.800	1.000
Φ	1.100	1.200	1.300
θ	0°		8°
θ1	9° TYP		
θ2	9° TYP		

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