公司型号	封装形式	H	包装规格	条管装-盒装：每管80Pcs，每盒4Kpcs 载带卷盘包装：每卷2500Pcs，每盒1卷盘
H01P13D H01P13K	DPAK TO-252	HAOHAI		

I_D=-13A
V_{DS}=-100V
$R_{DS(on)}$=170mΩ

■DESCRIPTION

The H01P13D（H01P13K）uses advanced trench technology and design to provide excellent $R_{DS(ON)}$ with low gate charge. It can be used in a wide variety of applications.

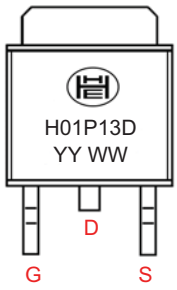
■GENERAL FEATURES

I_D=-13A, V_{DS}=-100V
$R_{DS(ON)}$<200mΩ @ V_{GS}=10V (Typ: 170mΩ)
High density cell design for ultra low $R_{DS(ON)}$
Fully characterized Avalanche voltage and current
Good stability and uniformity with high EAS
Excellent package for good heat dissipation
Special process technology for high ESD capability
100% UIS TESTED ! 100% ΔVDS TESTED !

■Application

Power switching application
Hard Switched and High Frequency Circuits
Uninterruptible Power Supply

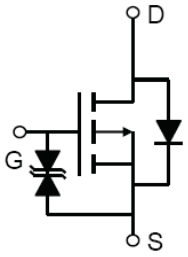
H01P13D Series Pin Assignment



SMD
DPAK
TO-252-2L

2-Lead Plastic TO-252
Package Code: D
Pin 1: Gate
Pin 2: Drain
Pin 3: Source

Series Symbol:



■ Absolute Maximum Ratings (T_C=25℃ unless otherwise noted)

Parameter	Symbol	Limit	Unit
Drain-Source Voltage	V_{DS}	-100	V
Gate-Source Voltage	V_{GS}	±20	
Drain Current-Continuous (T_C=25℃)	I_D	-13	A
Drain Current-Continuous (T_C=100℃)		-9.2	
Pulsed Drain Current	I_{DM}	-30	
Maximum Power Dissipation	P_D	40	W
Derating factor		0.32	W/℃
Single pulse avalanche energy (Note 5)	E_{AS}	110	mJ
Operating Junction and Storage Temperature Range	T_J, T_{STG}	-55~+150	℃

■ Thermal Characteristic

Parameter	Symbol	Limit	Unit
Thermal Resistance,Junction-to-Case (Note 2)	$R_{\theta Jc}$	3.13	℃/W

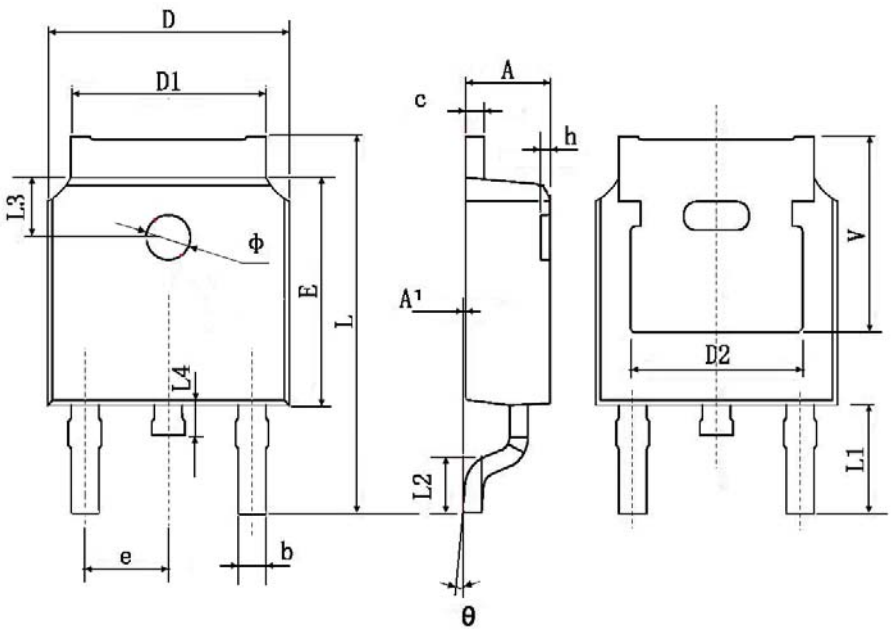
■ Electrical Characteristics (T_C=25℃ unless otherwise noted)

Parameter	Symbol	Condition	Min	Typ	Max	Unit
■ Off Characteristics						
Drain-Source Breakdown Voltage	BV_{DSS}	V_{GS}=0V, I_D=-250μA	-100	--	--	V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=-100V, V_{GS}=0V	--	--	1	μA
Gate-Body Leakage Current	I_{GSS}	V_{GS}=±20V, V_{DS}=0V	--	--	±10	nA
■ On Characteristics (Note 3)						
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS}, I_D=-250μA	-1	-1.9	-3	V
Drain-Source On-State Resistance	$R_{DS(ON)}$	V_{GS}=-10V, I_D=-16A	--	170	200	mΩ
Forward Transconductance	g_{FS}	V_{DS}=-15V, I_D=-5A	12	--	--	S
■ On Characteristics (Note 4)						
Input Capacitance	C_{lss}	V_{DS}=-25V V_{GS}=0V F=1.0MHz	--	1055	--	pF
Output Capacitance	C_{oss}		--	65	--	
Reverse Transfer Capacitance	C_{rss}		--	41	--	
■ Switching Characteristics (Note 4)						
Turn-on Delay Time	$t_{d(on)}$	V_{DD}=-50V I_D=-10A V_{GS}=-10V R_{GEN}=9.1Ω	--	14	--	nS
Turn-on Rise Time	t_r		--	18	--	
Turn-Off Delay Time	$t_{d(off)}$		--	50	--	
Turn-Off Fall Time	t_f		--	18	--	
Total Gate Charge	Q_g	V_{DS}=-50V I_D=-10A V_{GS}=-10V	--	25	--	nC
Gate-Source Charge	Q_{gS}		--	5	--	
Gate-Drain Charge	Q_{gd}		--	7	--	
■ Drain-Source Diode Characteristics						
Diode Forward Voltage (Note 3)	V_{SD}	V_{GS}=0V, I_S=-10A	--	--	-1.2	V
Diode Forward Current (Note 2)	I_S	--	--	--	-13	A
Reverse Recovery Time	t_{rr}	T_J=25℃, I_F=-10A di/dt=100A/μs (Note3)	--	35	--	nS
Reverse Recovery Charge	Q_{rr}		--	46	--	nC
Forward Turn-On Time	t_{on}	Intrinsic turn-on time is negligible (turn-on is dominated by LS+LD)				

Notes:
1、Repetitive Rating: Pulse width limited by maximum junction temperature.
2、Surface Mounted on FR4 Board, t ≤10sec.
3、Pulse Test: Pulse Width ≤300μs, Duty Cycle ≤2%
4、Guaranteed by design, not subject to production
5、EAS condition: T_j=25 ℃, V_{DD}=-50V, V_G=-10V, L=0.5mH, R_G=25Ω

PACKAGE DIMENSIONS

■ TO-252-2L（DPAK）PACKAGE INFORMATION（TO-252封装尺寸数据）



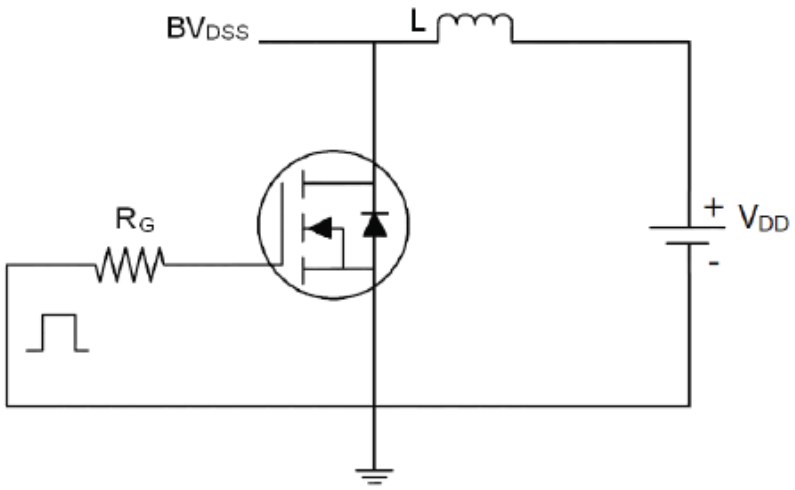
Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	2.200	2.400	0.087	0.094
A1	0.000	0.127	0.000	0.005
b	0.660	0.860	0.026	0.034
c	0.460	0.580	0.018	0.023
D	6.500	6.700	0.256	0.264
D1	5.100	5.460	0.201	0.215
D2	4.830 REF.		0.190 REF.	
E	6.000	6.200	0.236	0.244
e	2.188	2.386	0.086	0.094
L	9.800	10.400	0.386	0.409
L1				
L2	1.400	1.700	0.055	0.067
L3	2.900 REF.		0.114 REF.	
L4	0.600	1.000	0.024	0.039
Φ	1.100	1.300	0.043	0.051
θ	0°	8°	0°	8°
h	0.000	0.300	0.000	0.012
V	5.350 REF.		0.211 REF.	

■ 包装规格　Packaging Specifications

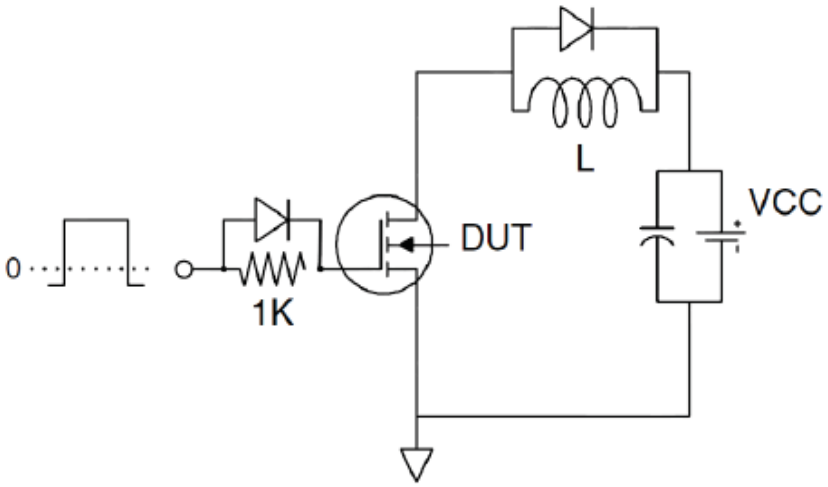
TO-252 DPAK	一、管装，每管80只，每盒4000只，每箱40000只 (80Pcs/Tub, 4Kpcs/BOX, 40Kpcs/Carton)
	二、载带卷盘包装，每卷盘2500只，每盒1卷盘，每箱25000只 (2.5Kpcs/Reel, 25Kpcs/Carton)

Test circuit

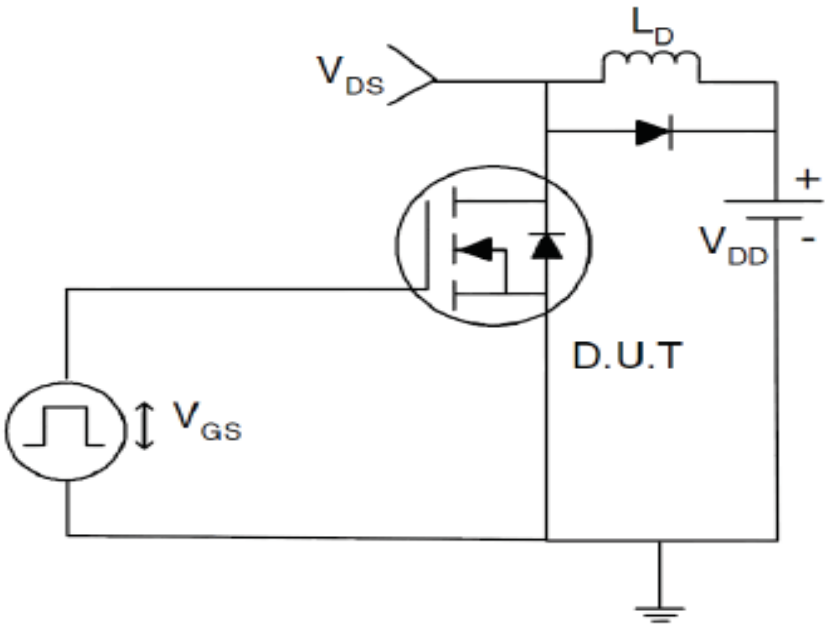
1: E_{AS} test Circuits



2: Gate charge test Circuit:



3: Switch Time Test Circuit



TYPICAL ELECTRICAL AND THERMAL CHARACTERISTICS (Curves)

Fig-1: Output Characteristics

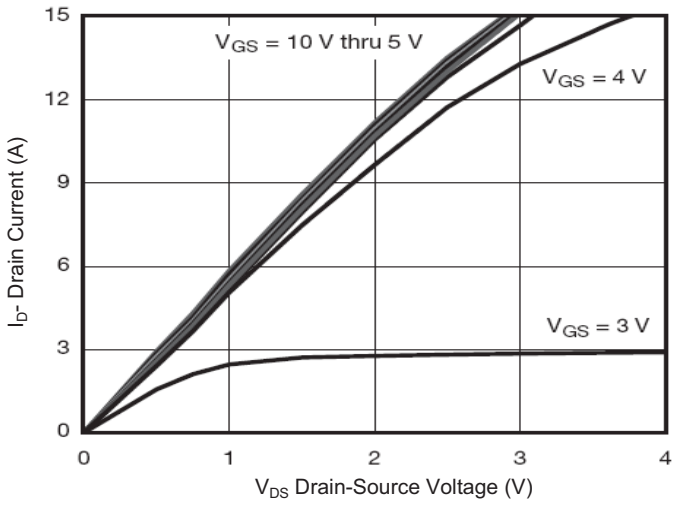


Fig-2: Transfer Characteristics

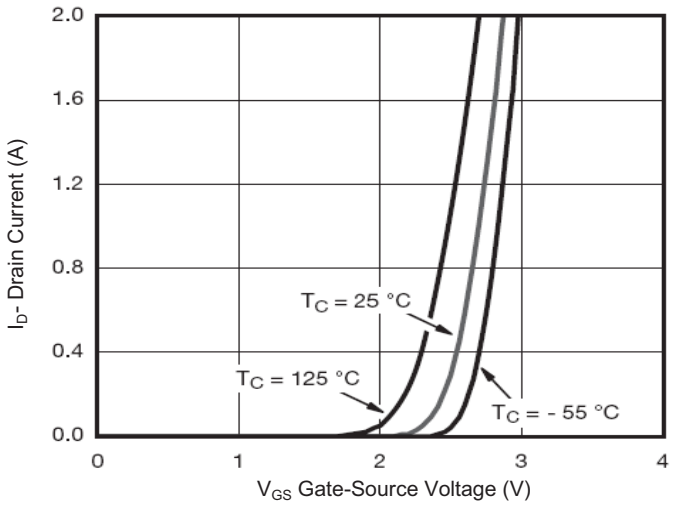


Fig-3: Rdson- Drain Current

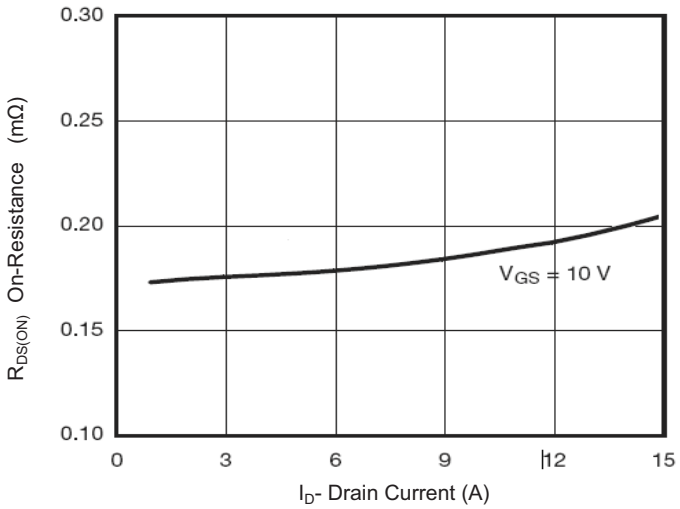


Fig-4: $R_{DS(ON)}$-JunctionTemperature

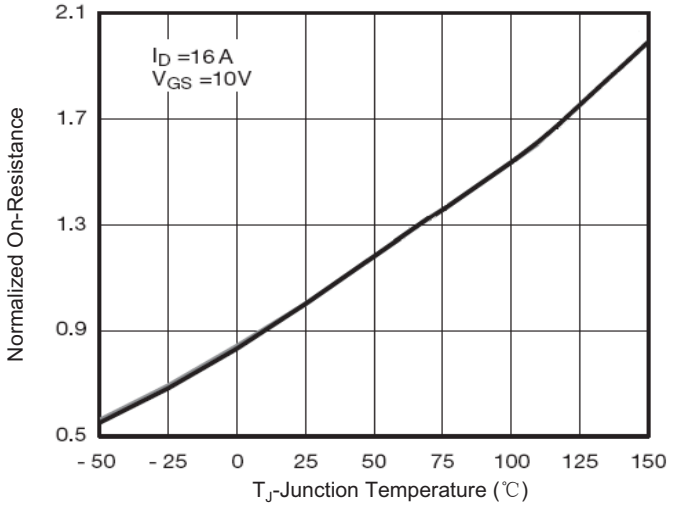


Fig-5: Gate Charge

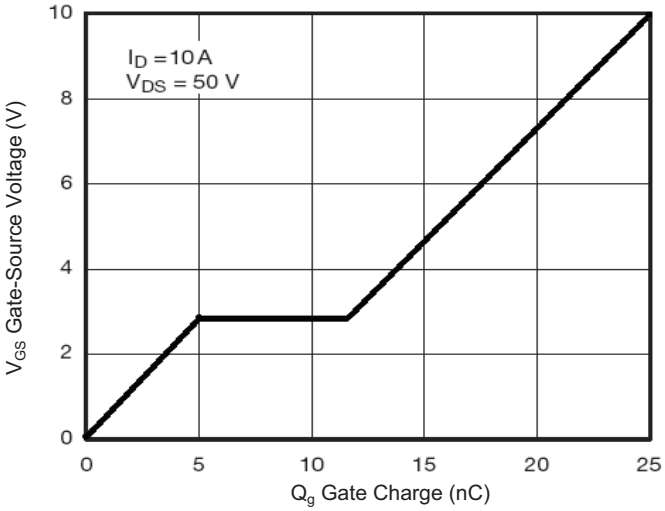


Fig-6: Source- Drain Diode Forward

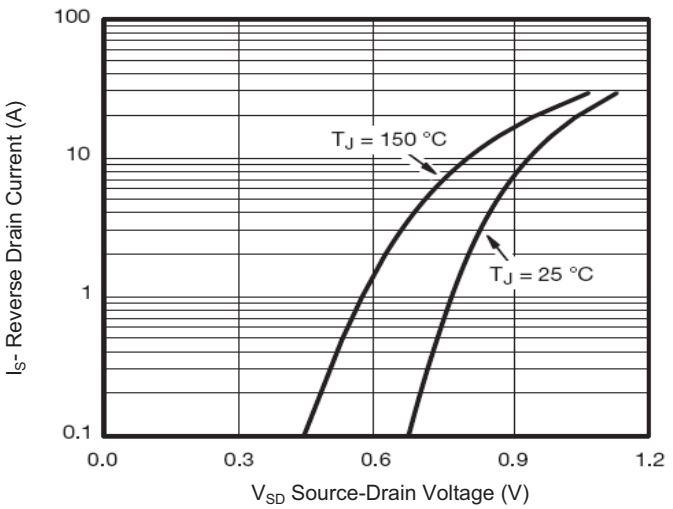


Fig-7: Capacitance vs V_{DS}

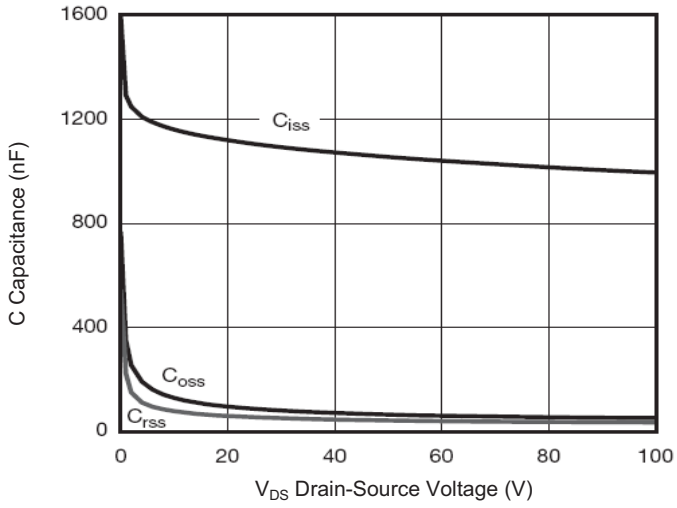


Fig-9: BV_{DSS} vs Junction Temperature

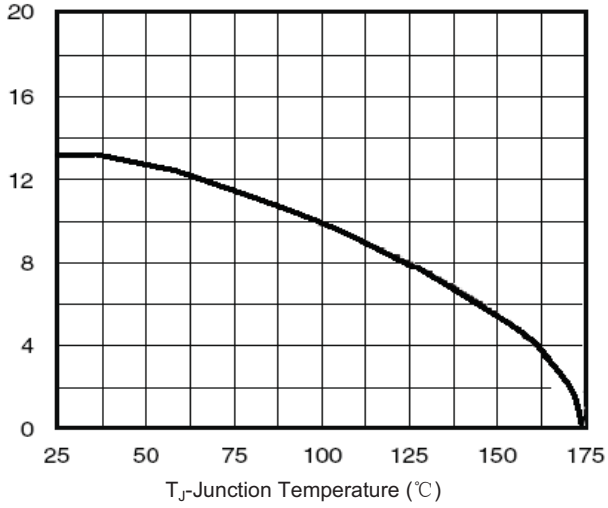


Fig-8: Safe Operation Area

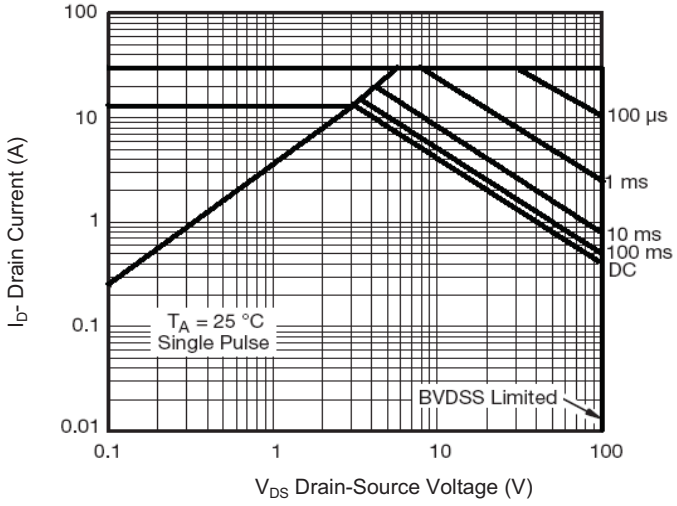


Fig-10: Power De-rating

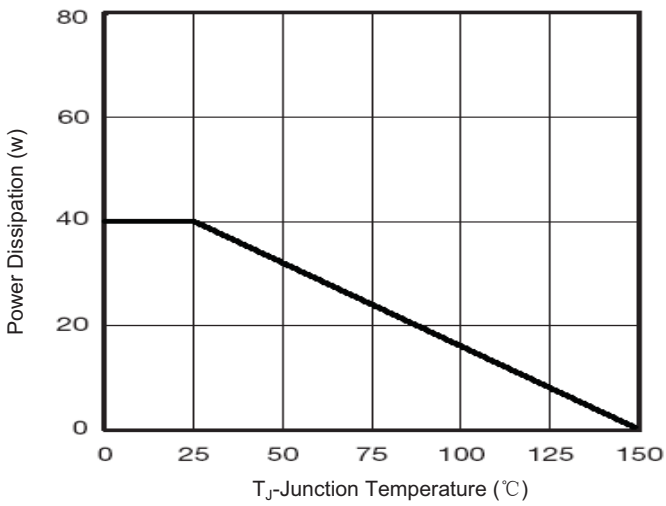
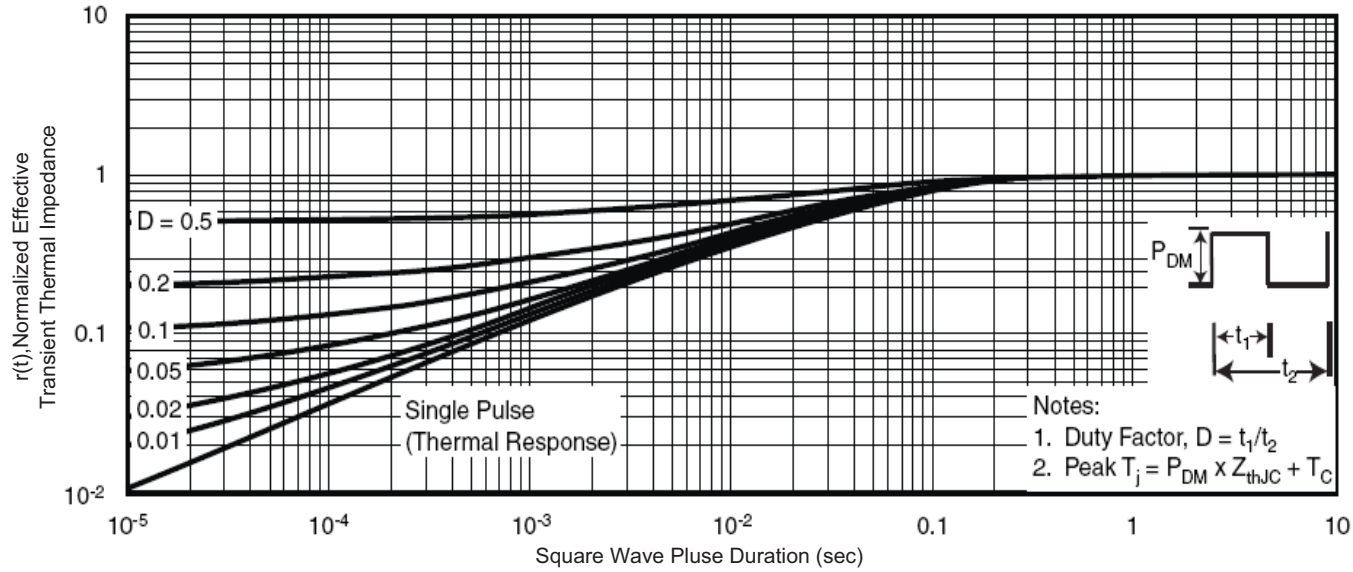


Fig-11: Normalized Maximum Transient Thermal Impedance



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