

TN07DN30JPA

Dual N-Channel Enhancement Mode Power MOSFET

SOP-8

Product Summary

- $V_{DS} = 30V, I_D = 7A$
- $R_{DS(on)} < 41m\Omega @ V_{GS} = 10V$
- $R_{DS(on)} < 45m\Omega @ V_{GS} = 4.5V$

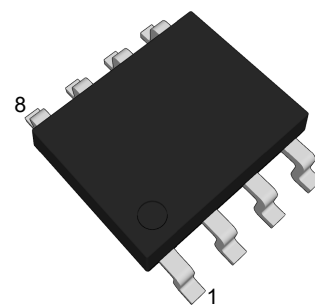
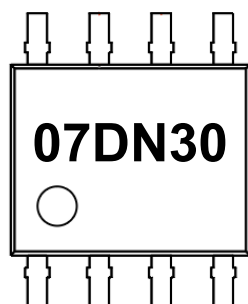
Features

- Advanced Trench Technology
- RoHS and Reach Compliant
- Halogen and Antimony Free
- Moisture Sensitivity Level 3

Application

- Power Switching Application
- Hard Switched and High Frequency Circuits
- Uninterruptible Power Supply

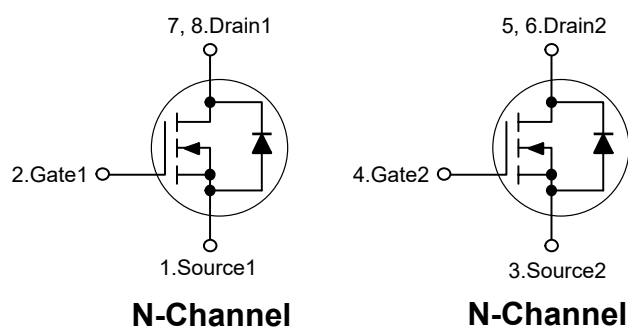
Marking Code



(Top View)

Pin	Description	Pin	Description
1	Source1	4	Gate2
2	Gate1	5,6	Drain2
3	Source2	7,8	Drain1

Schematic Diagram



Absolute Maximum Ratings

Ratings at 25°C ambient temperature unless otherwise specified.

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	30	V
Gate-Source Voltage	V_{GS}	± 12	V
Drain Current-Continuous	I_D	7	A
Drain Current-Pulsed ^{Note1}	I_{DM}	24	A
Maximum Power Dissipation	P_D	2.0	W
Junction Temperature	T_J	150	°C
Storage Temperature Range	T_{STG}	-55 to +150	°C

Thermal Characteristics

Thermal Resistance, Junction-to-Ambient ^{Note2}	$R_{\theta JA}$	62.5	°C/W
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Electrical Characteristics

(T_J=25°C unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Units
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _D =250uA	20	-	-	V
R _{DS(ON)}	Static Drain-Source On-Resistance ²	V _{GS} =10V, I _D =6.9A	-	21	41	mΩ
		V _{GS} =4.5V, I _D =5.8A	-	24	45	mΩ
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _D =250uA	-	1.2	3	V
g _{fs}	Forward Transconductance	V _{DS} =10V, I _D =6A	-	6	-	S
I _{DSS}	Drain-Source Leakage Current	V _{DS} =30V, V _{GS} =0V	-	-	25	uA
	Drain-Source Leakage Current (T _J =70°C)	V _{DS} =30V, V _{GS} =0V	-	-	250	uA
I _{GSS}	Gate-Source Leakage	V _{GS} =±12V, V _{DS} =0V	-	-	±100	nA
Q _g	Total Gate Charge ²	I _D =6A	-	11	17.6	nC
Q _{gs}	Gate-Source Charge	V _{DS} =16V	-	1.1	-	nC
Q _{gd}	Gate-Drain ("Miller") Charge	V _{GS} =10V	-	4.1	-	nC
t _{d(on)}	Turn-on Delay Time ²	V _{DS} =15V	-	4.2	-	ns
t _r	Rise Time	I _D =1A	-	9	-	ns
t _{d(off)}	Turn-off Delay Time	R _G =6Ω, V _{GS} =10V	-	23	-	ns
t _f	Fall Time	R _D =10Ω	-	3.5	-	ns
C _{iss}	Input Capacitance	V _{GS} =0V V _{DS} =15V f=1.0MHz	-	350	-	pF
C _{oss}	Output Capacitance		-	65	-	pF
C _{rss}	Reverse Transfer Capacitance		-	16	-	pF
R _g	Gate Resistance	f=1.0MHz	-	1.6	2.4	Ω
V _{SD}	Forward On Voltage ²	I _S =1.7A, V _{GS} =0V	-	-	1.2	V
t _{rr}	Reverse Recovery Time ²	I _S =6A, V _{GS} =0V, dI/dt=100A/μs	-	21	-	ns
Q _{rr}	Reverse Recovery Charge		-	14	-	nC

Notes:

1. Pulse width limited by Max. junction temperature.

2. Pulse test

3. Surface mounted on 1 in² copper pad of FR4 board, t ≤ 10sec ; 135 °C/W when mounted on Min. copper pad.

Typical Characteristic Curves

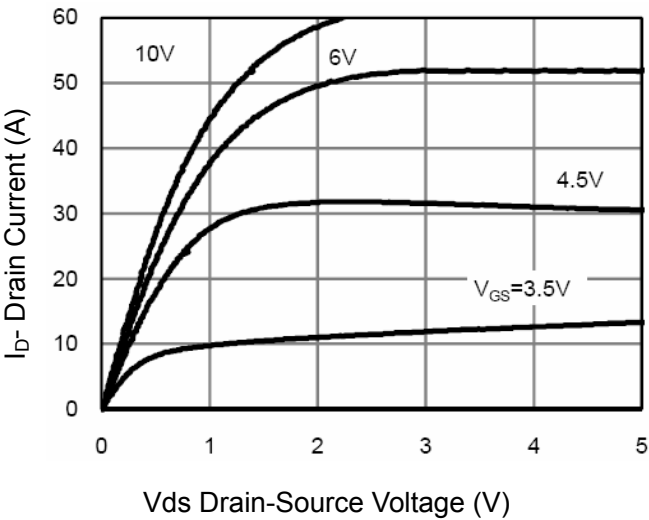


Figure 1 Output Characteristics

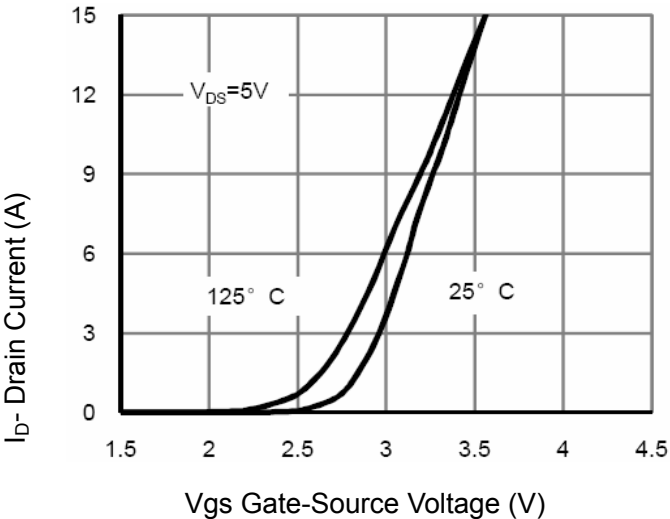


Figure 2 Transfer Characteristics

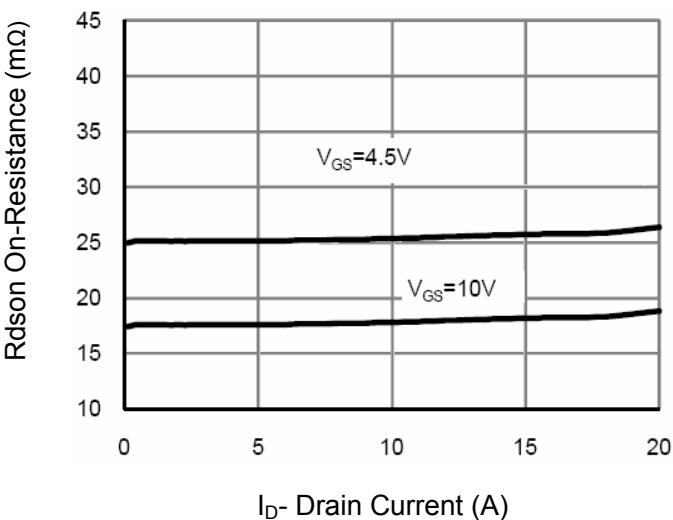


Figure 3 Rdson- Drain Current

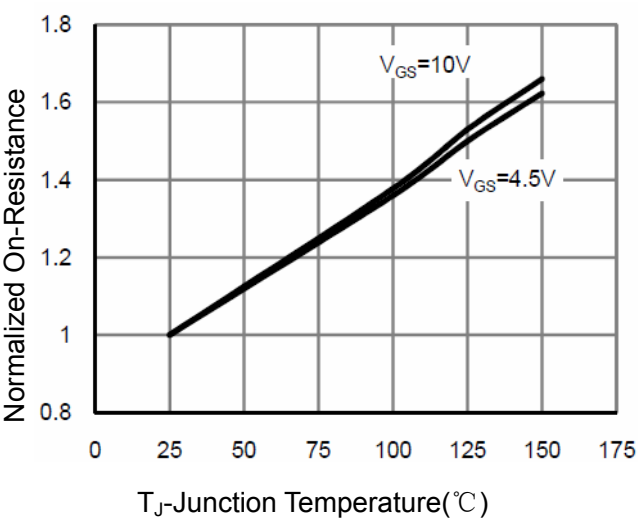


Figure 4 Rdson-Junction Temperature

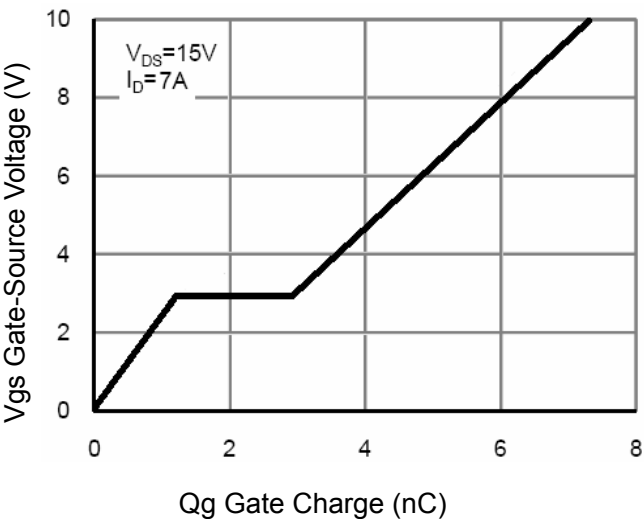


Figure 5 Gate Charge

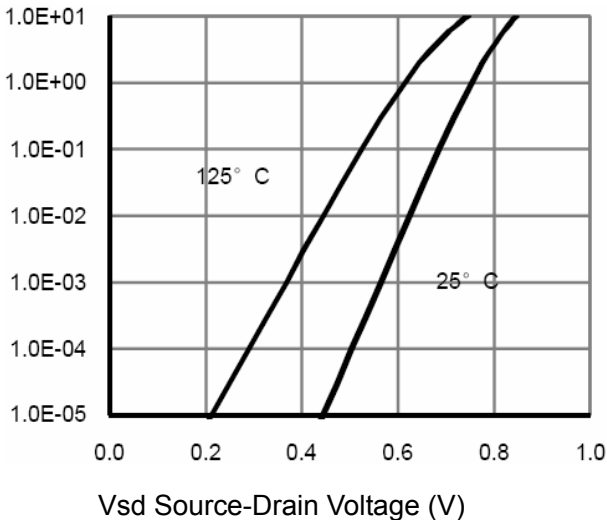


Figure 6 Source- Drain Diode Forward

Typical Characteristic Curves

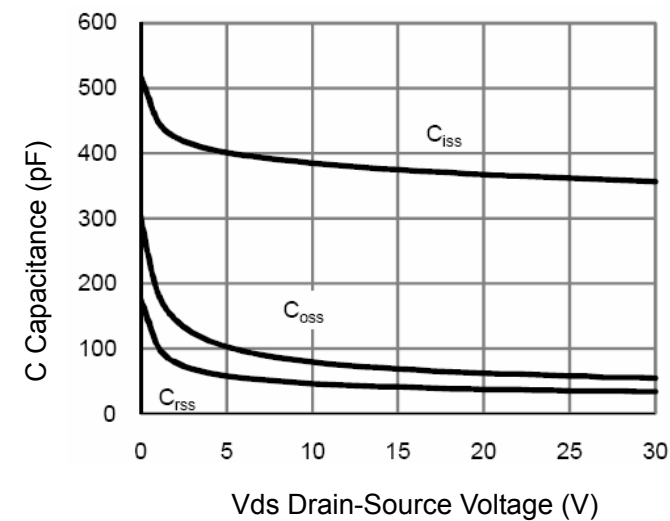


Figure 7 Capacitance vs Vds

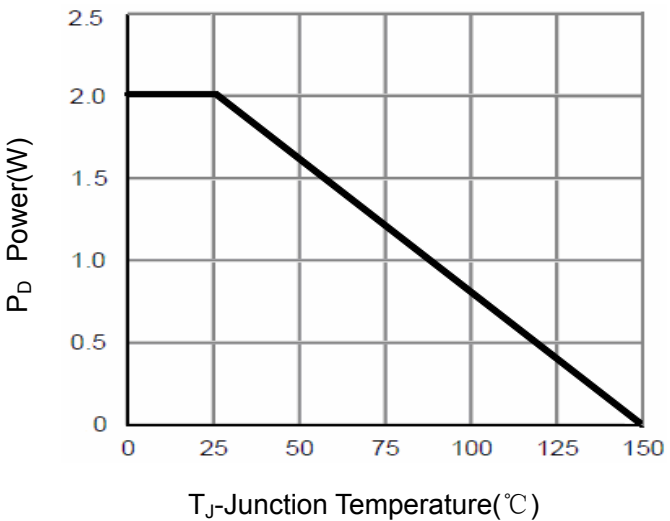


Figure 9 Power Dissipation

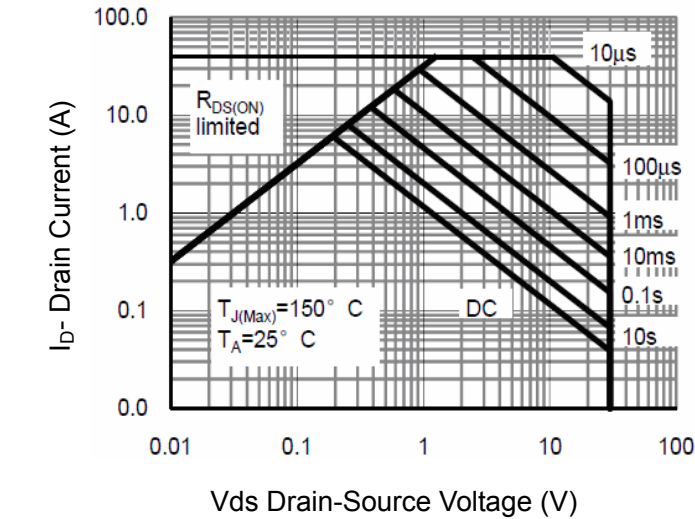


Figure 8 Safe Operation Area

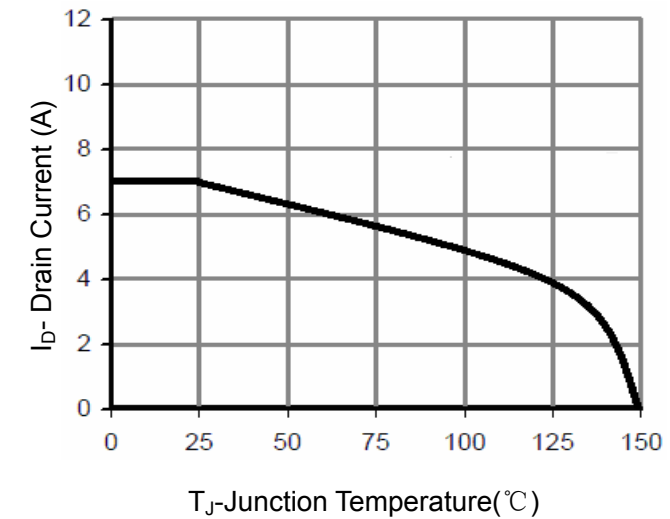


Figure 10 Current De-rating

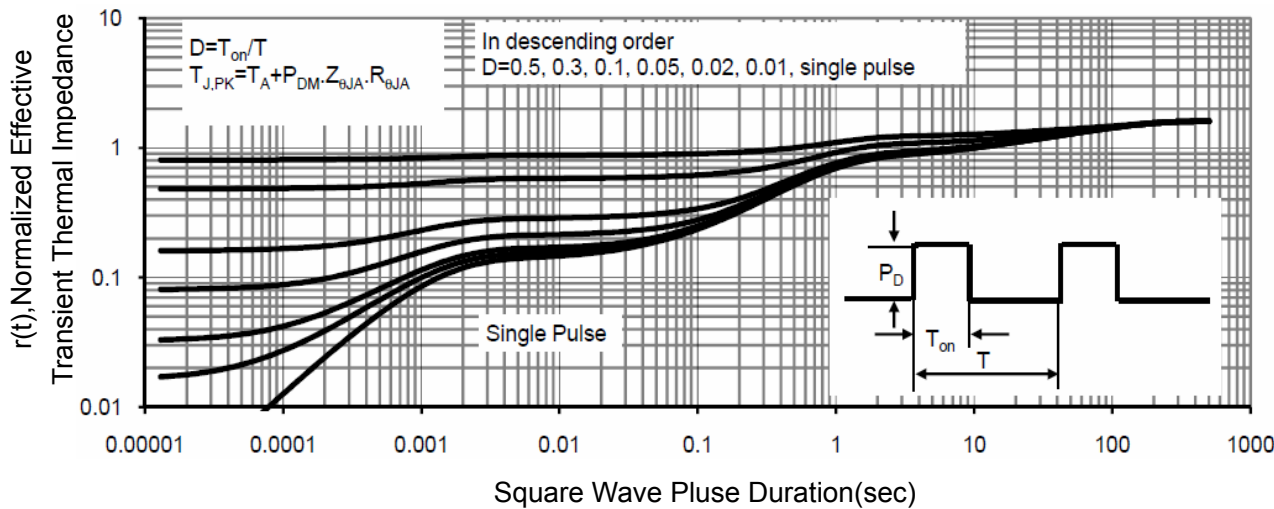
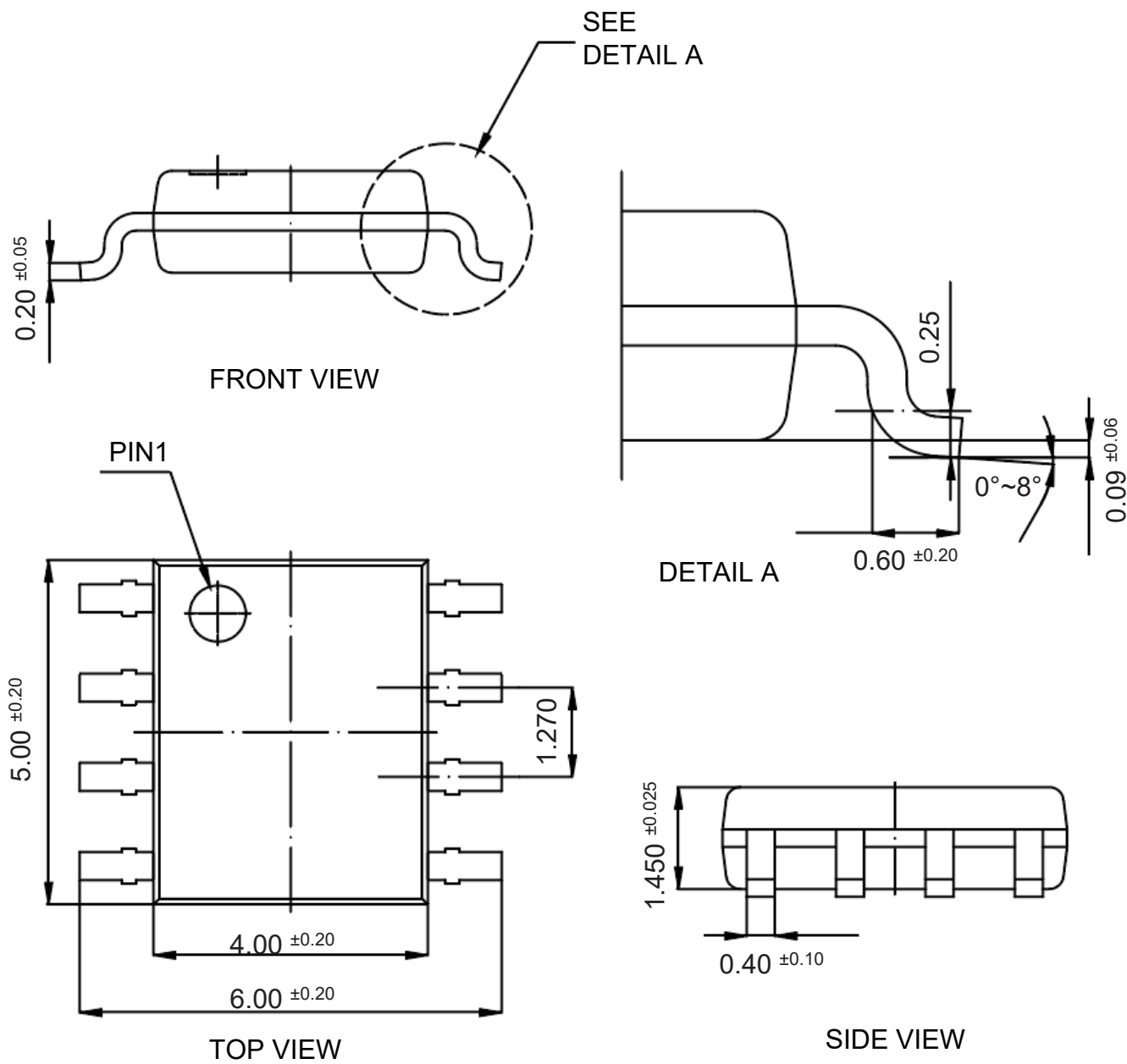


Figure 11 Normalized Maximum Transient Thermal Impedance

Package Outline

SOP-8 Dimensions in mm



Ordering Information

Device	Package	Shipping
TN07DN30JPA	SOP-8	4,000PCS/Reel&13inches

Contact Information

TANI website: <http://www.tanisemi.com> Email:tani@tanisemi.com

For additional information, please contact your local Sales Representative.

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