

TNG10N40PA

N-Channel Enhancement Mode Power MOSFET

Product Summary

- $V_{DS} = 40V, I_D = 10A$
- $R_{DS(on)} < 12m\Omega @ V_{GS} = 10V$
- $R_{DS(on)} < 18m\Omega @ V_{GS} = 4.5V$

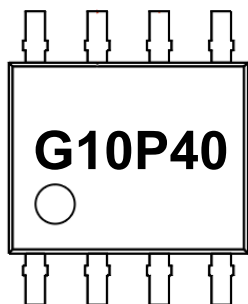
Features

- Advanced Split Gate Trench Technology
- 100% Avalanche Tested
- RoHS and Reach Compliant
- Halogen and Antimony Free
- Moisture Sensitivity Level 3

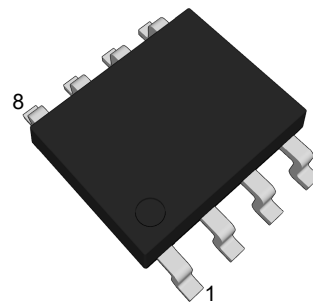
Application

- Load Switch
- PWM Application
- Power Management

Marking Code



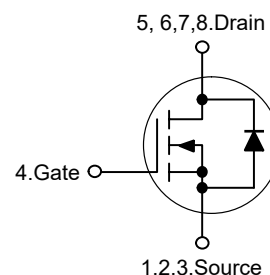
SOP-8



(Top View)

Pin	Description
1,2,3	Source
4	Gate
5,6,7,8	Drain

Schematic Diagram



Absolute Maximum Ratings

Ratings at 25°C ambient temperature unless otherwise specified.

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	40	V
Gate-Source Voltage	V_{GS}	± 20	V
Drain Current-Continuous	I_D	10	A
Drain Current-Pulsed ^{Note1}	I_{DM}	25	A
Maximum Power Dissipation	P_D	20	W
Junction Temperature	T_J	150	°C
Storage Temperature Range	T_{STG}	-55 to +150	°C

Thermal Characteristics

Thermal Resistance, Junction-to-Ambient ^{Note2}	$R_{\theta JA}$	55	°C/W
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Electrical Characteristics

(T_J=25°C unless otherwise specified)

Parameter	Symbol	Condition	Min	Typ	Max	Unit
Off Characteristics						
Drain-Source Breakdown Voltage	BV _{DSS}	V _{GS} =0V I _D =250μA	40	-	-	V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =40V, V _{GS} =0V	-	-	1	μA
Gate-Body Leakage Current	I _{GSS}	V _{GS} =±20V, V _{DS} =0V	-	-	±100	
On Characteristics ^(Note 3)						
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250μA	1	1.5	2.0	V
Drain-Source On-State Resistance	R _{DS(ON)}	V _{GS} =10V, I _D =8A	-	9.5	12	mΩ
		V _{GS} =4.5V, I _D =4A	-	16	18	mΩ
Forward Transconductance	g _{FS}	V _{DS} =5V, I _D =8A	33	-	-	S
Dynamic Characteristics ^(Note4)						
Input Capacitance	C _{Iss}	V _{DS} =20V, V _{GS} =0V, F=1.0MHz	-	964	-	PF
Output Capacitance	C _{Oss}		-	109	-	PF
Reverse Transfer Capacitance	C _{rss}		-	96	-	PF
Switching Characteristics ^(Note 4)						
Turn-on Delay Time	t _{d(on)}	V _{DD} =20V, R _L =2.5Ω V _{GS} =10V, R _{GEN} =3Ω	-	5.5	-	nS
Turn-on Rise Time	t _r		-	14	-	nS
Turn-Off Delay Time	t _{d(off)}		-	24	-	nS
Turn-Off Fall Time	t _f		-	12	-	nS
Total Gate Charge	Q _g	V _{DS} =20V, I _D =8A, V _{GS} =10V	-	22.9	-	nC
Gate-Source Charge	Q _{gs}		-	3.5	-	nC
Gate-Drain Charge	Q _{gd}		-	5.3	-	nC
Drain-Source Diode Characteristics						
Diode Forward Voltage ^(Note 3)	V _{SD}	V _{GS} =0V, I _S =9A	-	0.8	1.2	V

Typical Characteristic Curves

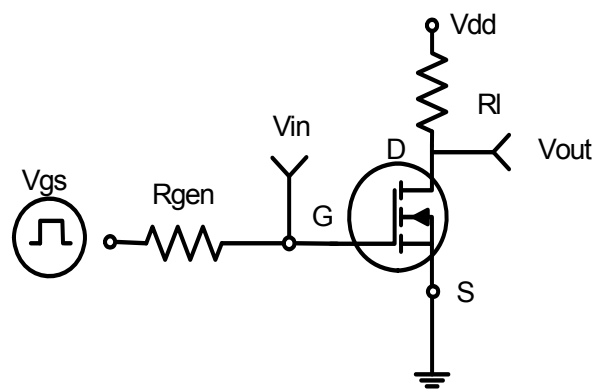


Figure 1:Switching Test Circuit

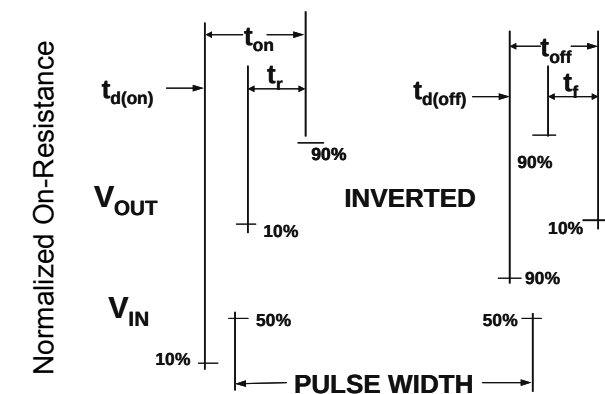


Figure 2:Switching Waveforms

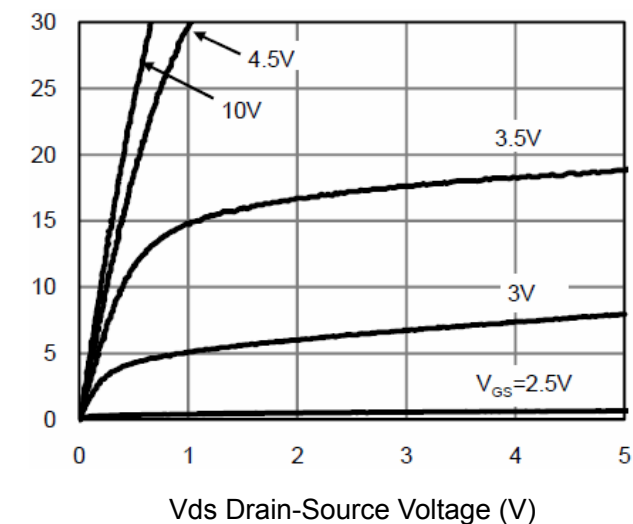


Figure 3 Output Characteristics

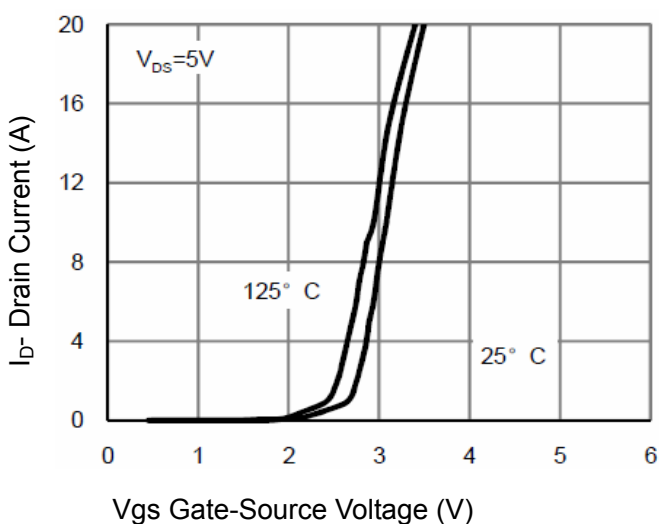


Figure 4 Transfer Characteristics

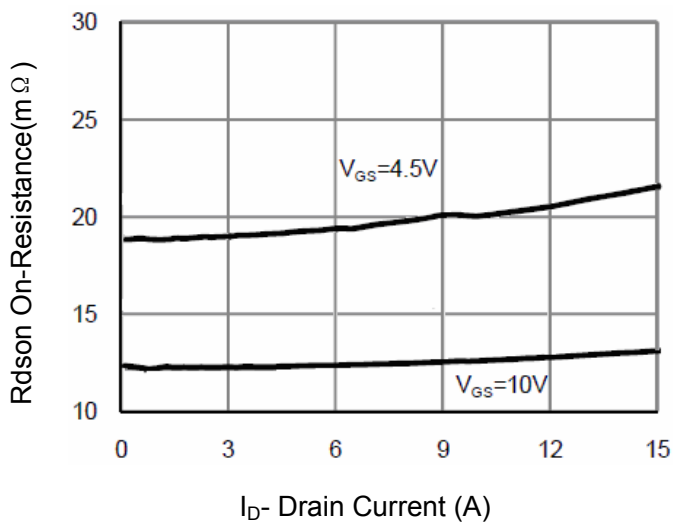


Figure 5 Drain-Source On-Resistance

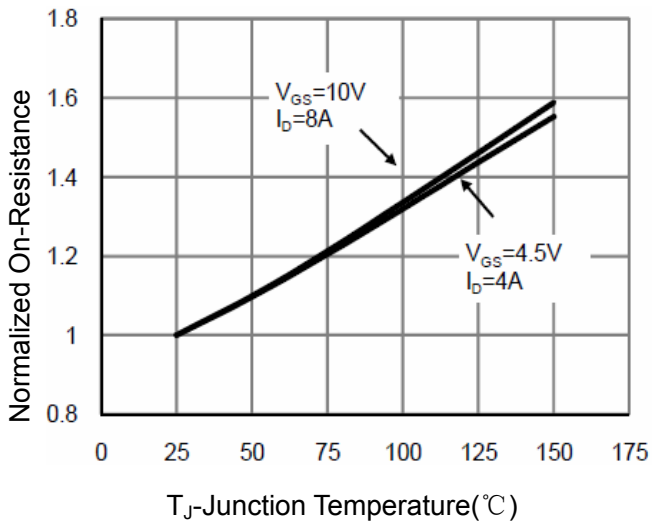


Figure 6 Drain-Source On-Resistance

Typical Characteristic Curves

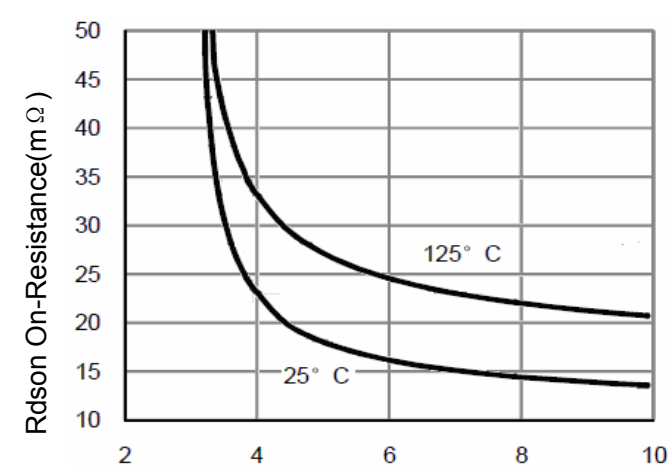


Figure7 Rdson vs Vgs

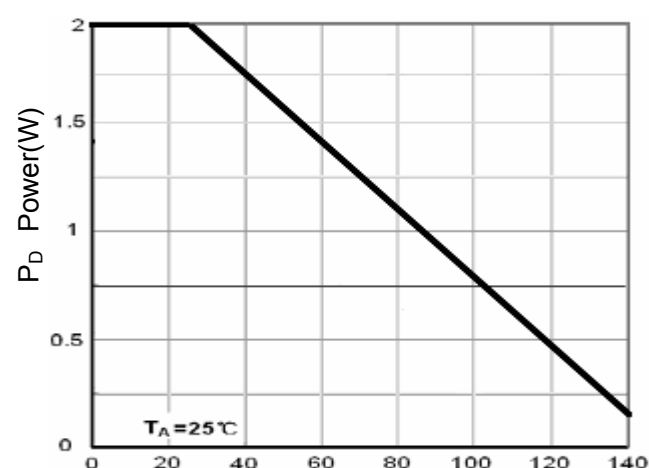


Figure 8 Power Dissipation

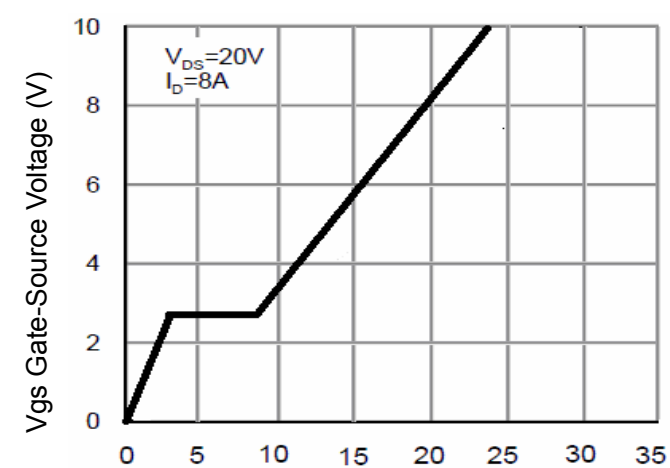


Figure 9 Gate Charge

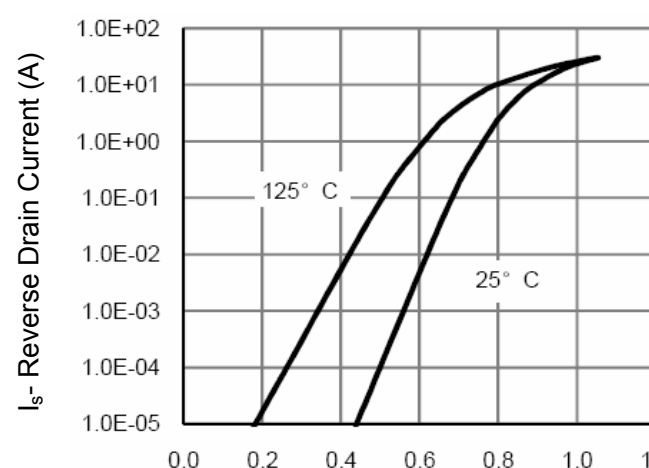


Figure 10 Source- Drain Diode Forward

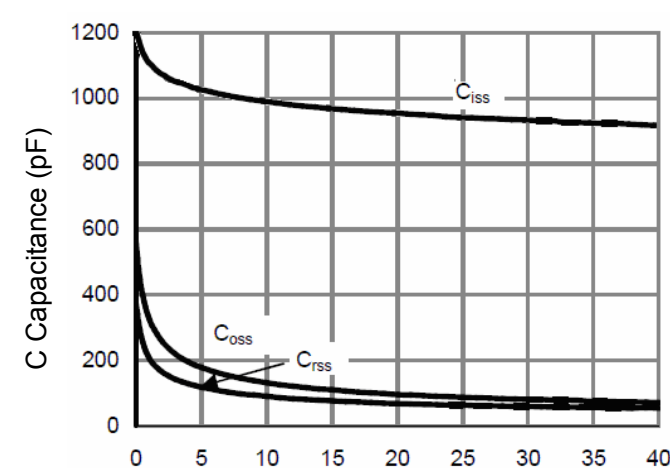


Figure 11 Capacitance vs Vds

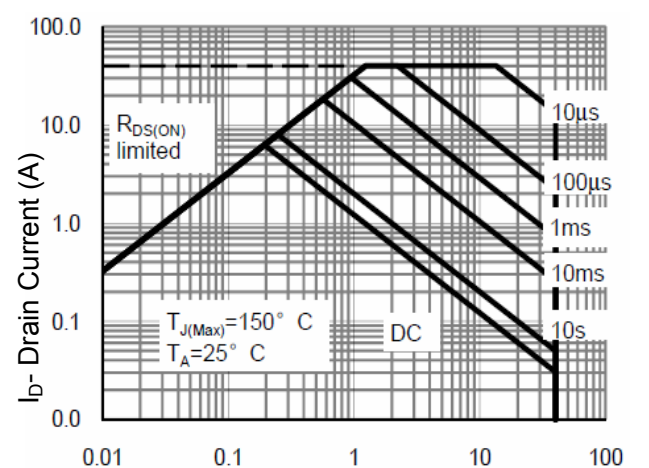
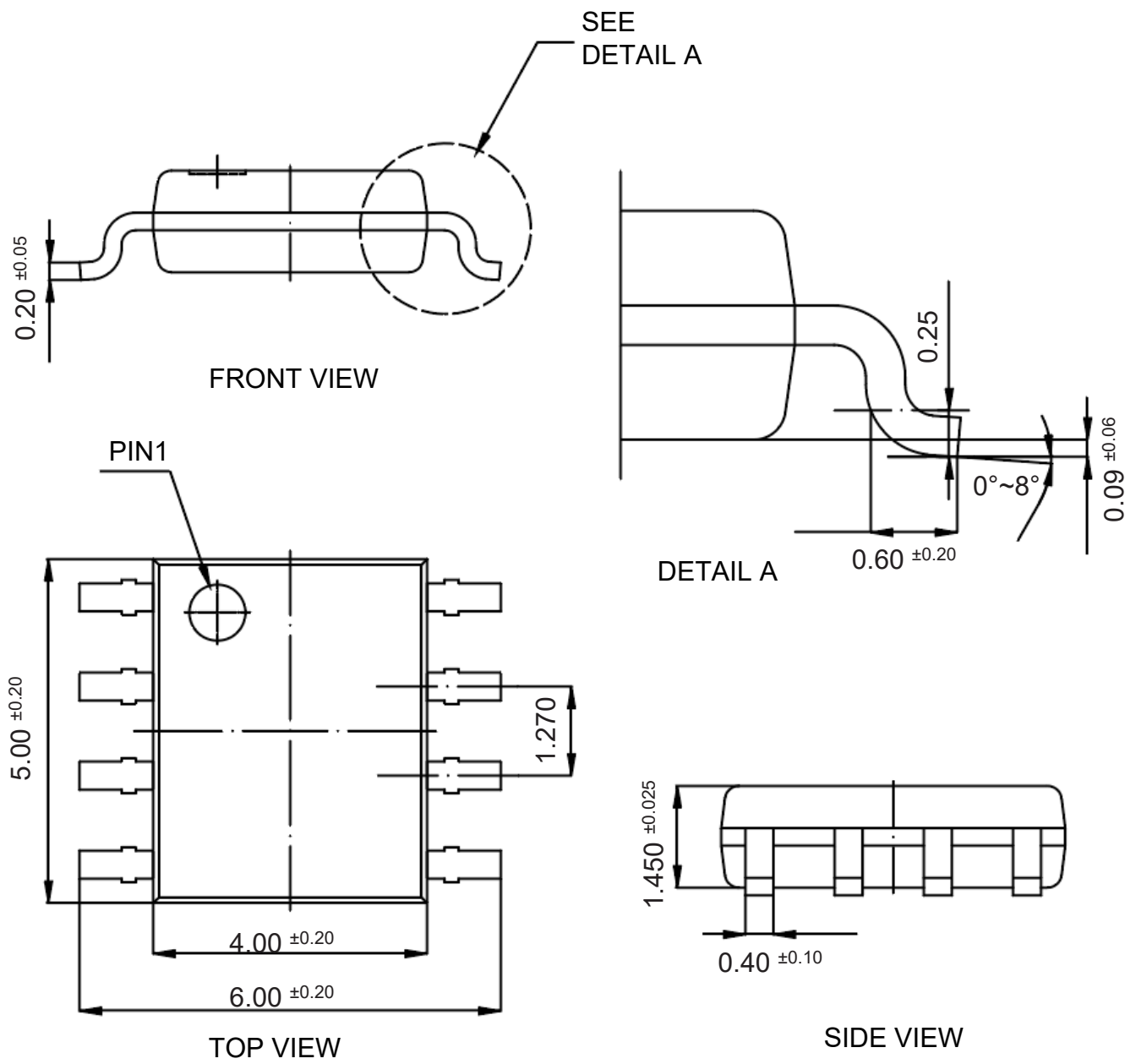


Figure 12 Safe Operation Area

Package Outline

SOP-8 Dimensions in mm



Ordering Information

Device	Package	Shipping
TNG10N40PA	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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