

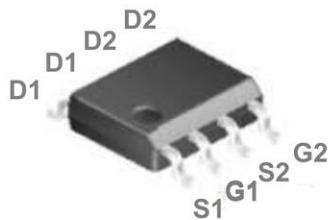
Product Summary

- $V_{DS} = 40V$ $I_D = -8 A$
- $R_{DS(ON)} < -20m\Omega$ @ $V_{GS}=10 V$
- $R_{DS(ON)} < - 25 m\Omega$ @ $V_{GS}=4.5V$

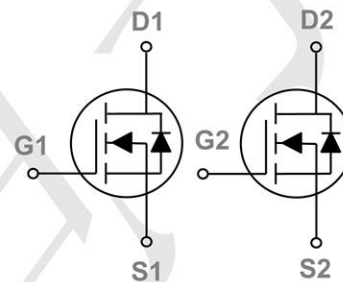
Application

- DC-DC Converters.
- Load Switch.
- Power Management.

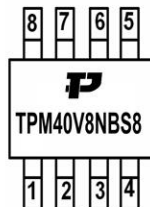
Package and Pin Configuration



Circuit diagram



Marking:



Absolute Maximum Ratings $T_c=25^\circ C$ unless otherwise noted

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	40	V
V_{GS}	Gate-Source Voltage	± 20	V
I_D	Drain Current – Continuous ($T_A=25^\circ C$)	8	A
	Drain Current – Continuous ($T_A=70^\circ C$)	6.4	A
I_{DM}	Drain Current – Pulsed ¹	32	A
EAS	Single Pulse Avalanche Energy ²	4.9	mJ
IAS	Single Pulse Avalanche Current ²	9.9	A
P_D	Power Dissipation ($T_A=25^\circ C$)	2	W
	Power Dissipation – Derate above $25^\circ C$	0.016	W/ $^\circ C$
T_{STG}	Storage Temperature Range	-50 to 150	$^\circ C$
T_J	Operating Junction Temperature Range	-50 to 150	$^\circ C$

Thermal Characteristics

Symbol	Parameter	Typ.	Max.	Unit
$R_{\theta JA}$	Thermal Resistance Junction to ambient	---	62.5	$^\circ C/W$

Electrical Characteristics (T_J=25 °C, unless otherwise noted)

Off Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _D =250uA	40	---	---	V
I _{DSS}	Drain-Source Leakage Current	V _{DS} =40V, V _{GS} =0V, T _J =25°C	---	---	1	uA
		V _{DS} =32V, V _{GS} =0V, T _J =125°C	---	---	10	uA
I _{GSS}	Gate-Source Leakage Current	V _{GS} =±20V, V _{DS} =0V	---	---	±100	nA

On Characteristics

R _{DS(ON)}	Static Drain-Source On-Resistance	V _{GS} =10V, I _D =8A	---		20	mΩ
		V _{GS} =4.5V, I _D =4A	---		25	mΩ
V _{GS(th)}	Gate Threshold Voltage	V _{GS} =V _{DS} , I _D =250uA	1.2	1.6	2.5	V
g _{fs}	Forward Transconductance	V _{DS} =10V, I _D =1A	---	5	---	S

Dynamic and switching Characteristics

Q _g	Total Gate Charge ^{2,3}	V _{DS} =32V, V _{GS} =10V, I _D =3A	---	10.8	21.6	nC
Q _{gs}	Gate-Source Charge ^{2,3}		---	1.6	3.2	
Q _{gd}	Gate-Drain Charge ^{2,3}		---	3.3	6.6	
T _{d(on)}	Turn-On Delay Time ^{2,3}	V _{DD} =15V, V _{GS} =10V, R _G =3.3Ω I _D =1A	---	3.8	7.6	ns
T _r	Rise Time ^{2,3}		---	10.5	21	
T _{d(off)}	Turn-Off Delay Time ^{2,3}		---	22.2	45	
T _f	Fall Time ^{2,3}		---	6.6	13.2	
C _{iss}	Input Capacitance	V _{DS} =25V, V _{GS} =0V, F=1MHz	---	724	1450	pF
C _{oss}	Output Capacitance		---	70	140	
C _{rss}	Reverse Transfer Capacitance		---	109	220	
R _g	Gate resistance	V _{GS} =0V, V _{DS} =0V, F=1MHz	---	2.6	---	Ω

Drain-Source Diode Characteristics and Maximum Ratings

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I _S	Continuous Source Current	V _G =V _D =0V, Force Current	---	---	8	A
I _{SM}	Pulsed Source Current		---	---	16	A
V _{SD}	Diode Forward Voltage	V _{GS} =0V, I _S =1A, T _J =25°C	---	---	1	V

Typical Performance Characteristics ($T_A=25^\circ\text{C}$ unless otherwise Specified)

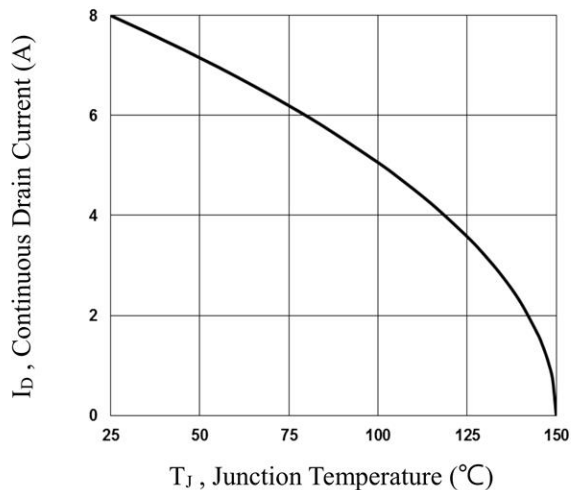


Fig.1 Continuous Drain Current vs. T_c

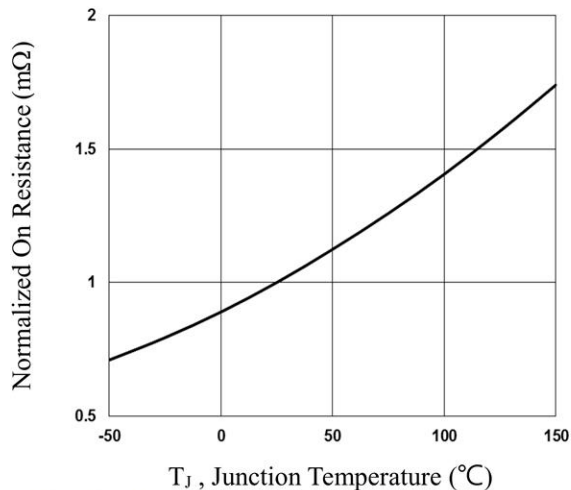


Fig.2 Normalized $R_{DS(on)}$ vs. T_J

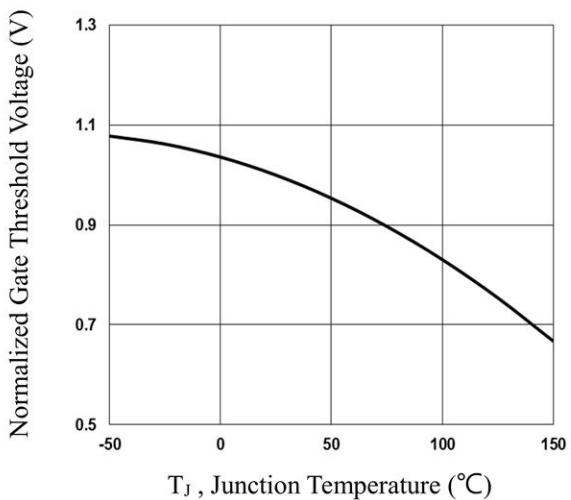


Fig.3 Normalized V_{th} vs. T_J

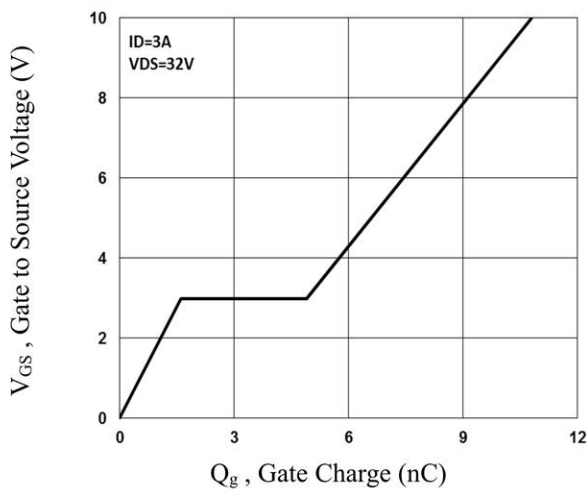


Fig.4 Gate Charge Waveform

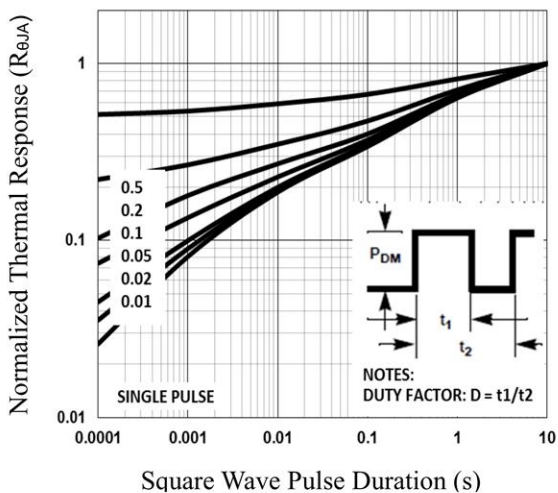


Fig.5 Normalized Transient Impedance

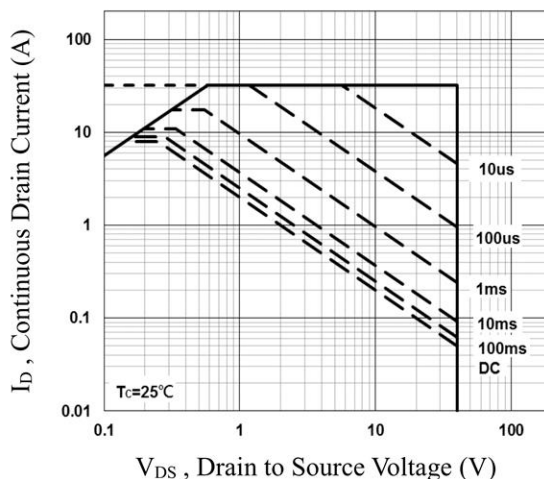
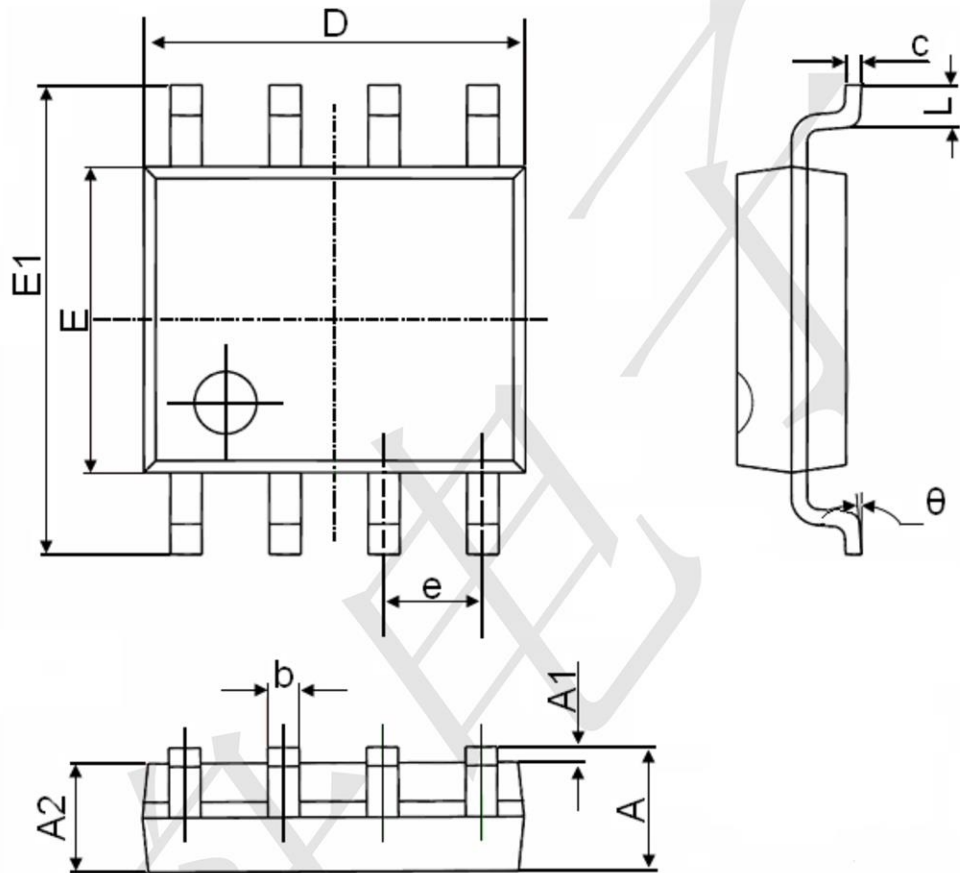


Fig.6 Maximum Safe Operation Area

SOP-8 Package Information



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	1.350	1.750	0.053	0.069
A1	0.100	0.250	0.004	0.010
A2	1.350	1.550	0.053	0.061
b	0.330	0.510	0.013	0.020
c	0.170	0.250	0.006	0.010
D	4.700	5.100	0.185	0.200
E	3.800	4.000	0.150	0.157
E1	5.800	6.200	0.228	0.244
e	1.270(BSC)		0.050(BSC)	
L	0.400	1.270	0.016	0.050
θ	0°	8°	0°	8°