TPSI4800BDY-T1-GE3

N-Channel 30-V (D-S) MOSFET

Product Summary

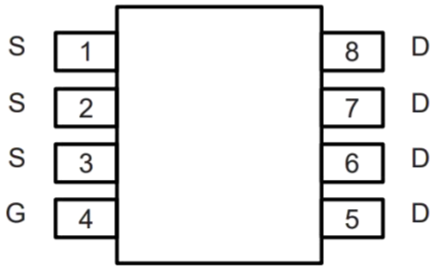
- V_{DS} 30 V
- I_{DS} (@ V_{GS}= 10V) 9A
- $R_{DS(ON)}$ (@ V_{GS}= 10V) < 16mΩ(Typ)

Reference:SI4800BDY-T1-GE3

Application

- Reverse Battery protection
- Load switch
- Power management
- PWM Application

Package and Pin Configuration



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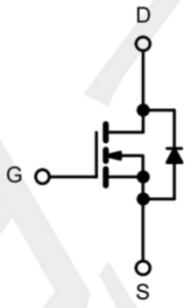
Circuit diagram



N-Channel MOSFET

Absolute Maximum Ratings (T

PARAMETER	SYMBOL	LIMIT	UNIT
Drain-Source Voltage	V_{DS}	30	V
Gate-Source Voltage	V_{GS}	±20	V
Continuous Drain Current	I_D	9	A
Pulsed Drain Current (note1)	I_{DM}	30	A
Maximum Power Dissipation	P_D	3	W
Operating Junction Temperature Range	T_J	-55 to +150	℃
Storage Temperature Range	T_{stg}	-55 to +150	℃

Thermal Characteristic

PARAMETER		Symbol	Value	Unit
Thermal Resistance from Junction to Ambient(t≤10s)	PCB Mount (note2)	$R_{\theta JA}$	62.5	°C/W

notes 1. Repetitive Rating: Pulse width limited by maximum junction temperature.

2 . When mounted on 1" square PCB (FR4 material).

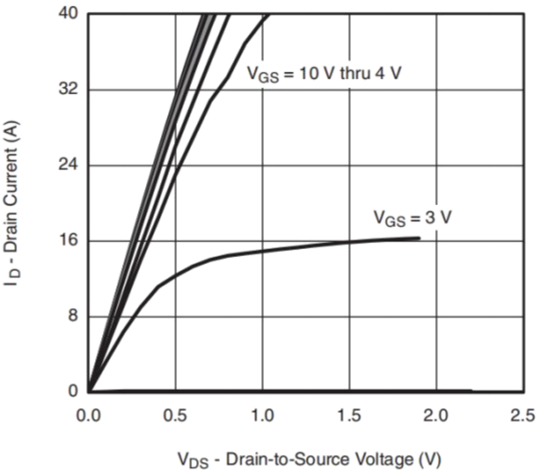
Electrical Characteristics (T$_A$=25℃unless otherwise noted)

PARAMETER	CONDITIONS	SYMBOL	MIN	TYP	MAX	UNIT
Static						
Drain-Source Breakdown Voltage	V_{GS}=0V, I_D=250μA	BV_{DSS}	30	--	--	V
Gate-Source Threshold Voltage	V_{DS}=V_{GS} , I_D= 250μA	$V_{GS(th)}$	1.0	--	2.5	V
Gate-Source Leakage	V_{DS}=0V, V_{GS}= ±20V	I_{GSS}	--	--	±100	nA
Zero Gate Voltage Drain Current	V_{DS}= 24V, V_{GS}=0V	I_{DSS}	--	--	1	μA
	V_{DS}= 24V, T_J=125°C		--	--	25	μA
Drain-Source On-State Resistance (Note 1)	V_{GS}= 10V, I_D=9A	R_{DS}(on)	--	16	22	mΩ
	V_{GS}= 4.5V, I_D=7A		--	20	30	
Forward Transconductance (Note 2)	V_{DS}= 10V, I_D= 1A	g_{fs}	--	3.8	--	S
Dynamic (Note 2)						
Total Gate Charge (Note 3)	V_{DS} = 15V, I_D =9A, V_{GS} =10V	Q_g	--	12.6	--	nC
Gate-Source Charge (Note 3)		Q_{gs}	--	1.8	--	
Gate-Drain Charge (Note 3)		Q_{gd}	--	2.7	--	
Input Capacitance	V_{DS} =25V, V_{GS} = 0V, F= 1.0MHz	C_{iss}	--	492	--	pF
Output Capacitance		C_{oss}	--	67	--	
Reverse Transfer Capacitance		C_{rss}	--	49	--	
Switching						
Turn-On Delay Time (Note 3)	V_{DD} = 15V, I_D= 1A, V_{GS} = 10V, R_G = 6Ω	$t_{d(on)}$	--	5.8	--	nS
Rise Time (Note 3)		t_r	--	16.6	--	
Turn-Off Delay Time (Note 3)		$t_{d(off)}$	--	31.2	--	
Fall Time (Note 3)		t_f	--	7.6	--	
Source-Drain Diode Ratings and Characteristics (Note 2)						
Forward Voltage	V_{GS} = 0V, I_{SD} = 1A	V_{SD}	--	0.8	1.2	V
Continuous Source Current	Integral reverse diode in the MOSFET	I_S	--	--	9	A
Pulsed Current (Note 1)		I_{SM}	--	--	30	A

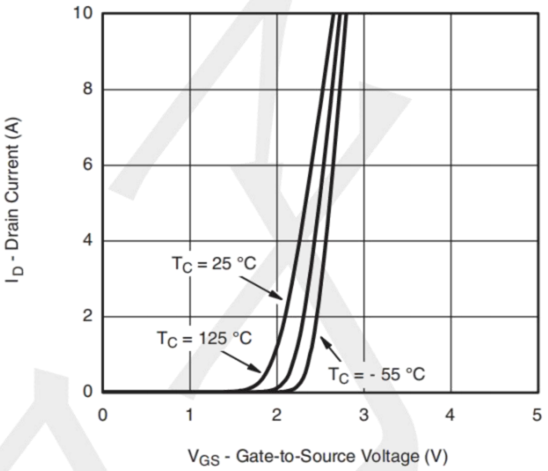
Notes:

1. Pulse test; pulse width ≤ 300 μS, duty cycle ≤ 2%.
2. Guaranteed by design, not subject to production testing.
3. Independent of operating temperature

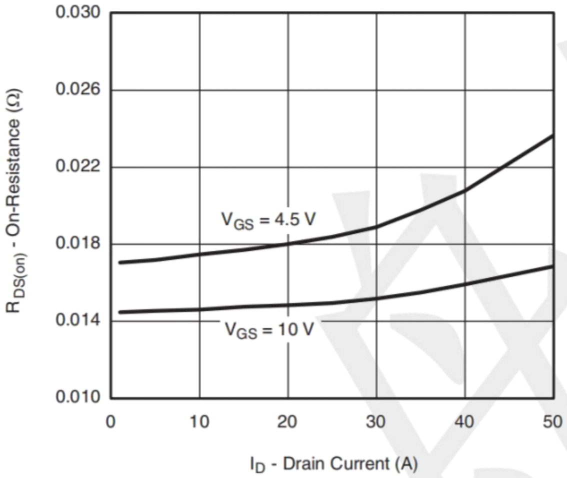
TYPICAL CHARACTERISTICS (25 °C, unless otherwise noted)



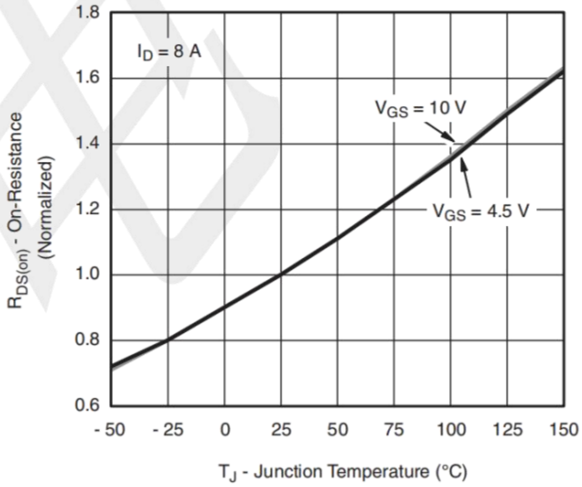
Output Characteristics



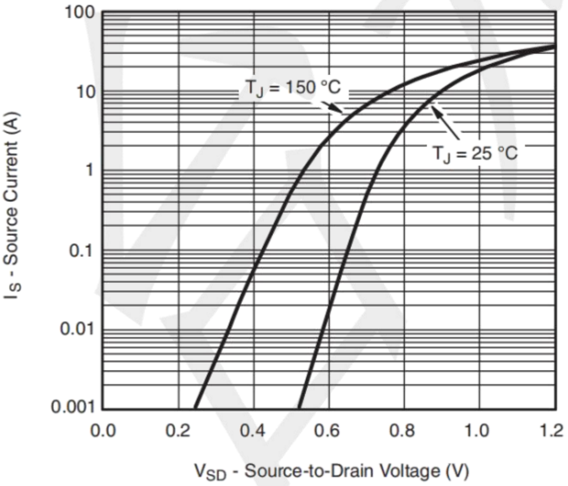
Transfer Characteristics



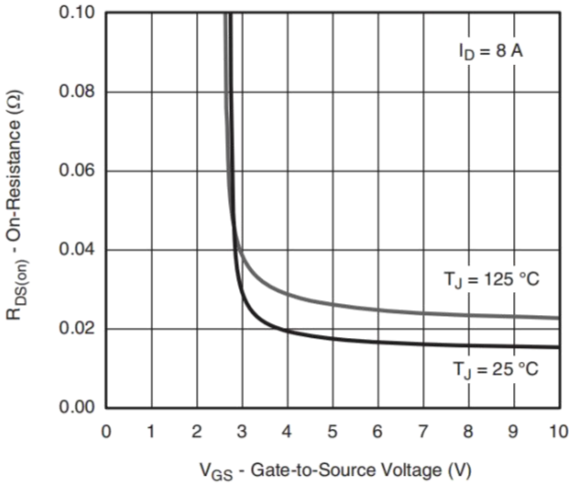
On-Resistance vs. Drain Current and Gate Voltage



On-Resistance vs. Junction Temperature

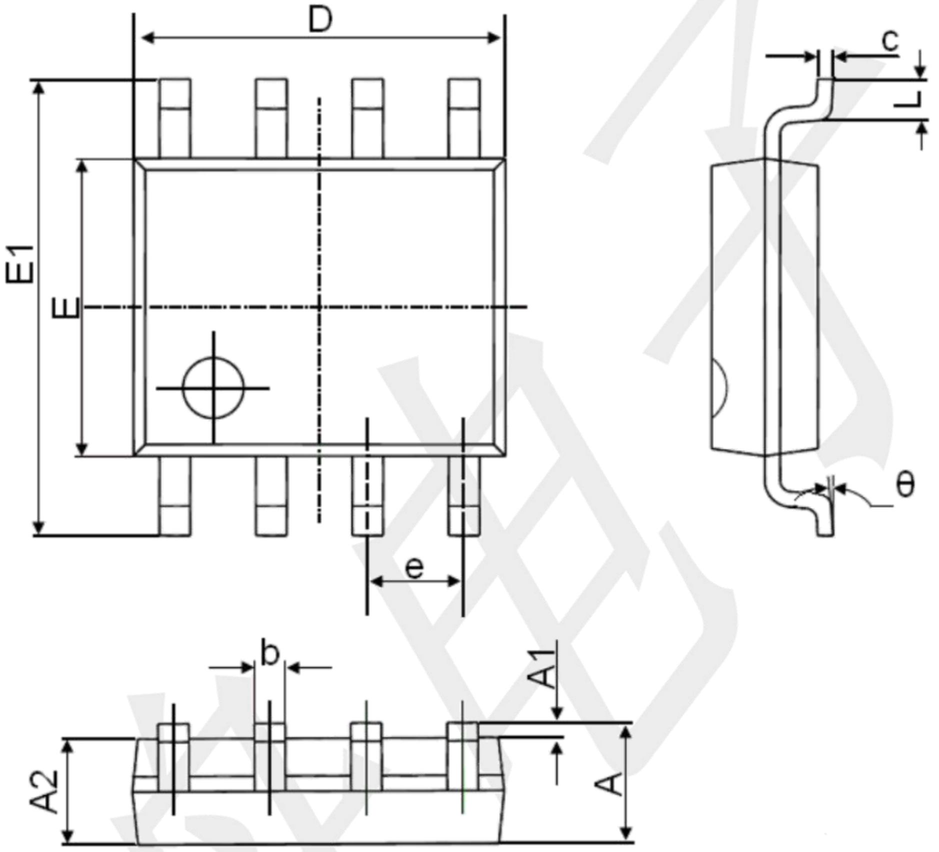


Source-Drain Diode Forward Voltage



On-Resistance vs. Gate-to-Source Voltage

Package Information SOP8



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°