

FH8810T2

N- Channel Enhancement Mode Power MOSFET

Description

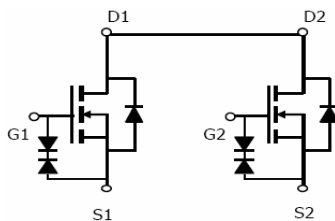
The FH8810T2 uses advanced trench technology to provide excellent $R_{DS(ON)}$, low gate charge and operation with gate voltages as low as 2.5V. This device is suitable for use as a load switch or in PWM applications. It is ESD protected.

Application

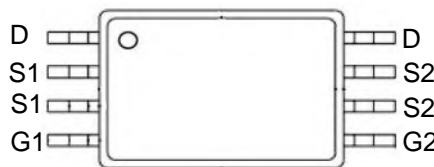
- PWM application
- Load switch

General Features

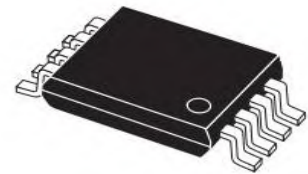
- $V_{DS} = 20V, I_D = 7.8A$
- $R_{DS(ON)} = 10 \text{ m}\Omega$ (Typ) @ $V_{GS} = 4.5V$
- $R_{DS(ON)} = 11 \text{ m}\Omega$ (Typ) @ $V_{GS} = 3.8V$
- $R_{DS(ON)} = 14 \text{ m}\Omega$ (Typ) @ $V_{GS} = 2.5V$
- ESD Rating : 2000V HBM
- High Power and current handling capability
- Lead free product is acquired
- Surface Mount Package



Schematic diagram



Marking and pin Assignment



TSSOP-8 top view

Absolute Maximum Ratings (TA=25°C unless otherwise noted)

Parameter	Symbol	Limit	Unit
Drain-Source Voltage	V_{DS}	20	V
Gate-Source Voltage	V_{GS}	± 10	V
Drain Current-Continuous	I_D	7.8	A
Drain Current-Pulsed (Note 1)	I_{DM}	31	A
Maximum Power Dissipation	P_D	1.3	W
Avalanche energy (Note 2)	E_{AS}	25	mJ
Operating Junction and Storage Temperature Range	T_J, T_{STG}	-55 To 150	°C
Thermal Resistance, Junction-to-Ambient	$R_{\theta JA}$	87.5	°C/W

Electrical Characteristics ($T_J=25^\circ\text{C}$ unless otherwise noted)

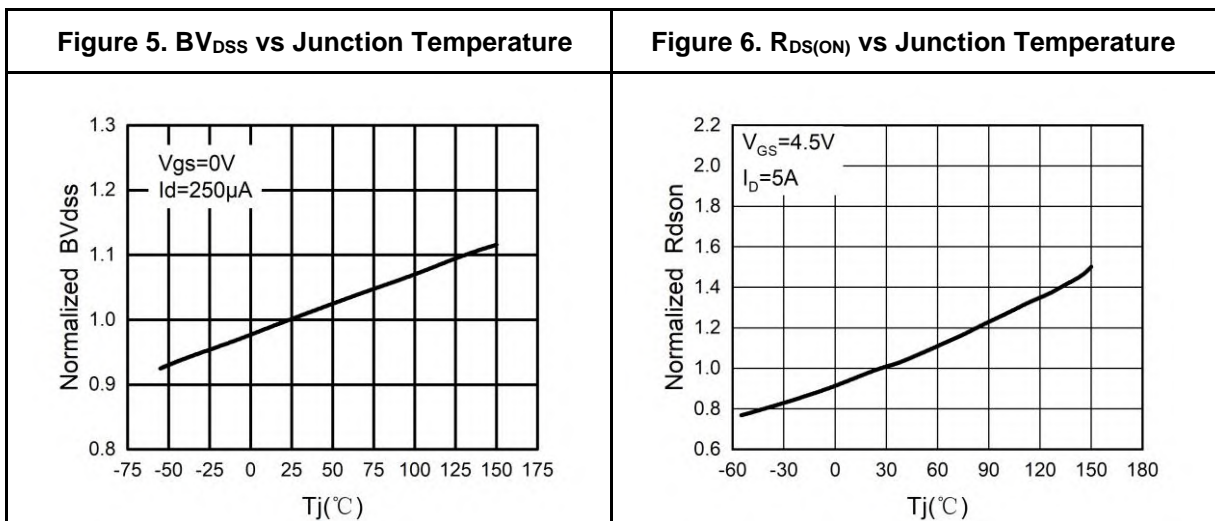
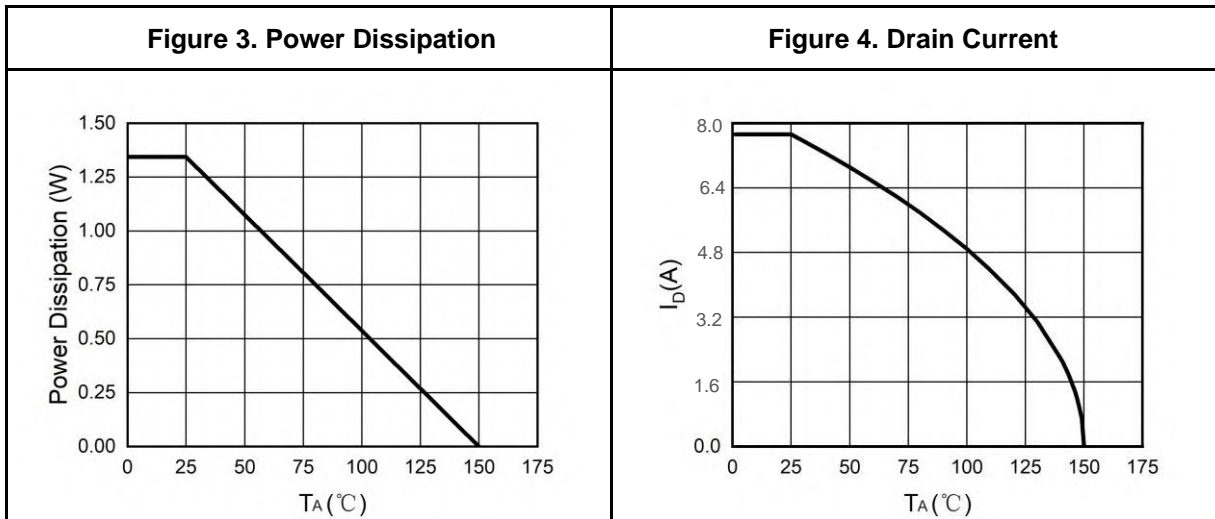
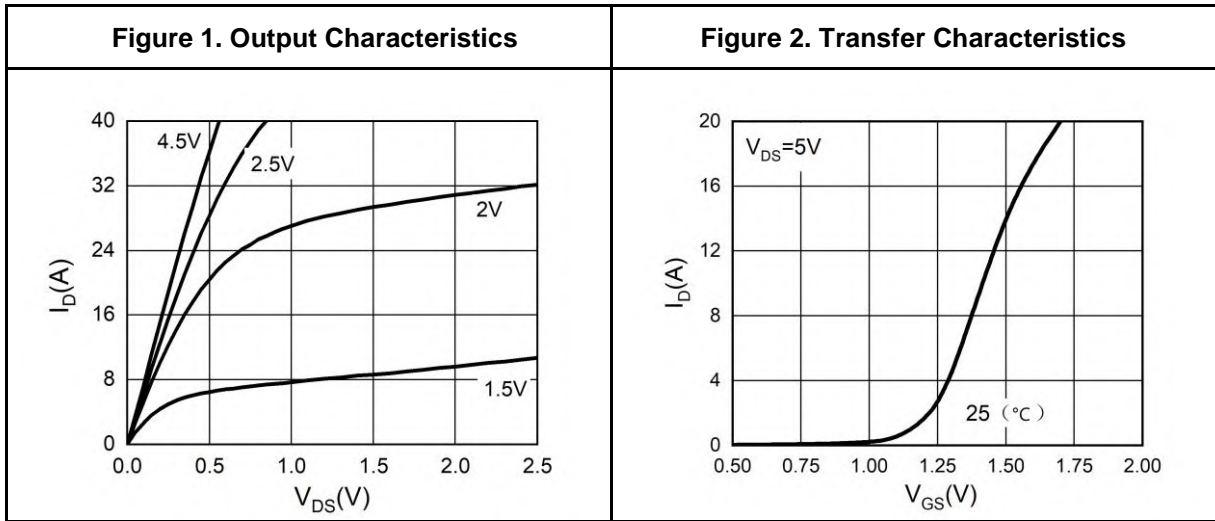
Symbol	Parameter	Conditions	Min	Typ	Max	Unit
On/Off States						
BV_{DSS}	Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D=250\mu A$	20			V
I_{DSS}	Zero Gate Voltage Drain Current	$V_{DS}=20V, V_{GS}=0V, T_J=25^\circ\text{C}$			1	μA
		$V_{DS}=20V, V_{GS}=0V, T_J=125^\circ\text{C}$			100	μA
I_{GSS}	Gate-Body Leakage Current	$V_{GS}=\pm 10V, V_{DS}=0V$			± 10	μA
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS}=V_{GS}, I_D=250\mu A$	0.5		1	V
g_{FS}	Forward Transconductance	$V_{DS}=5V, I_D=5A$		13.6		S
$R_{DS(on)}$	Drain-Source On-State Resistance	$V_{GS}=4.5V, I_D=5A, T_J=25^\circ\text{C}$		10	14.5	m Ω
		$V_{GS}=3.8V, I_D=5A, T_J=25^\circ\text{C}$		11	15	
		$V_{GS}=2.5V, I_D=4A, T_J=25^\circ\text{C}$		14	18.5	
Dynamic Characteristics						
C_{iss}	Input Capacitance	$V_{DS}=10V, V_{GS}=0V,$ $f=1.0\text{MHz}$		720		pF
C_{oss}	Output Capacitance			150		pF
C_{rss}	Reverse Transfer Capacitance			90		pF
Switching Parameters						
$t_{d(on)}$	Turn-on Delay Time	$V_{GS}=4.5V, V_{DS}=10V,$ $R_L=2\Omega, R_{GEN}=3\Omega$		11		nS
t_r	Turn-on Rise Time			34		nS
$t_{d(off)}$	Turn-Off Delay Time			55		nS
t_f	Turn-Off Fall Time			51		nS
Q_g	Total Gate Charge	$V_{GS}=4.5V, V_{DS}=10V, I_D=5A$		9.1		nC
Q_{gs}	Gate-Source Charge			1.6		nC
Q_{gd}	Gate-Drain Charge			2		nC
Source-Drain Diode Characteristics						
I_{SD}	Source-Drain Current (Body Diode)				7.8	A
V_{SD}	Forward on Voltage (Note 3)	$V_{GS}=0V, I_S=5A$			1.2	V

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

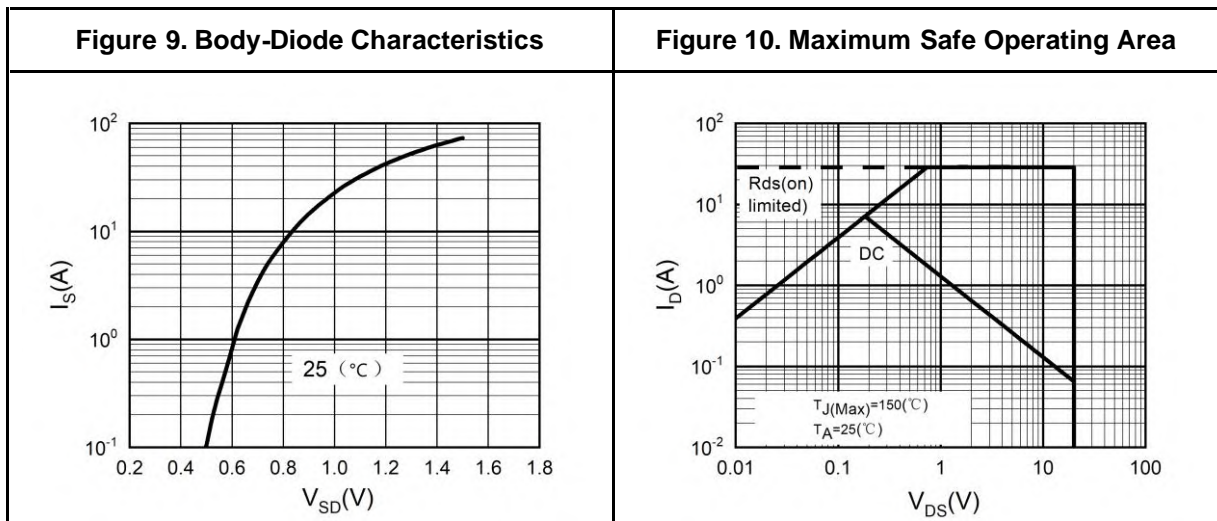
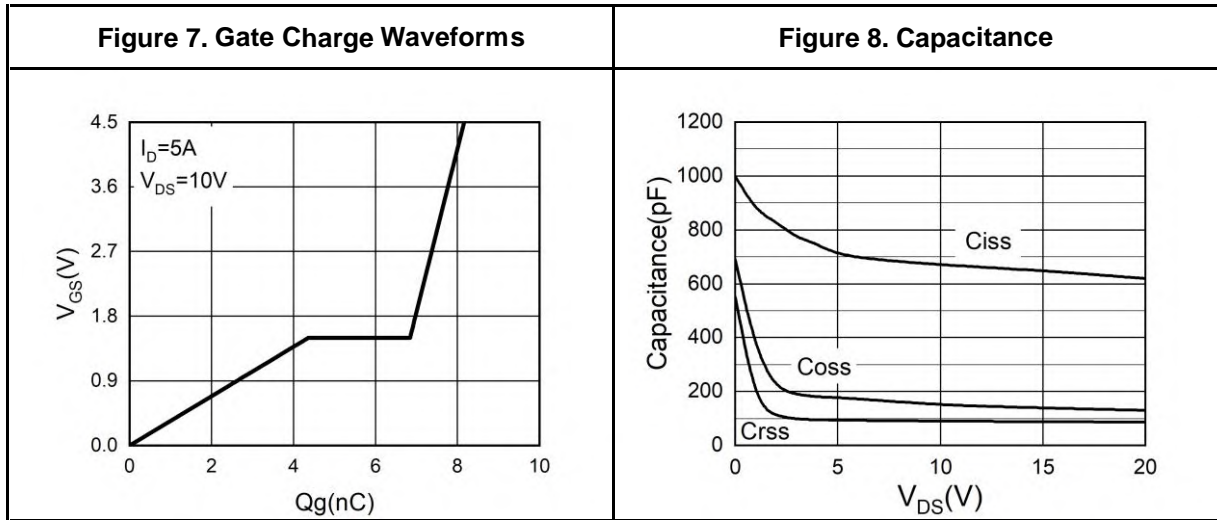
Notes 2. E_{AS} condition: $T_J=25^\circ\text{C}, V_{DD}=10V, V_G=10V, R_g=25\Omega, L=0.5\text{mH}$.

Notes 3.Repetitive Rating: Pulse width limited by maximum junction temperature.

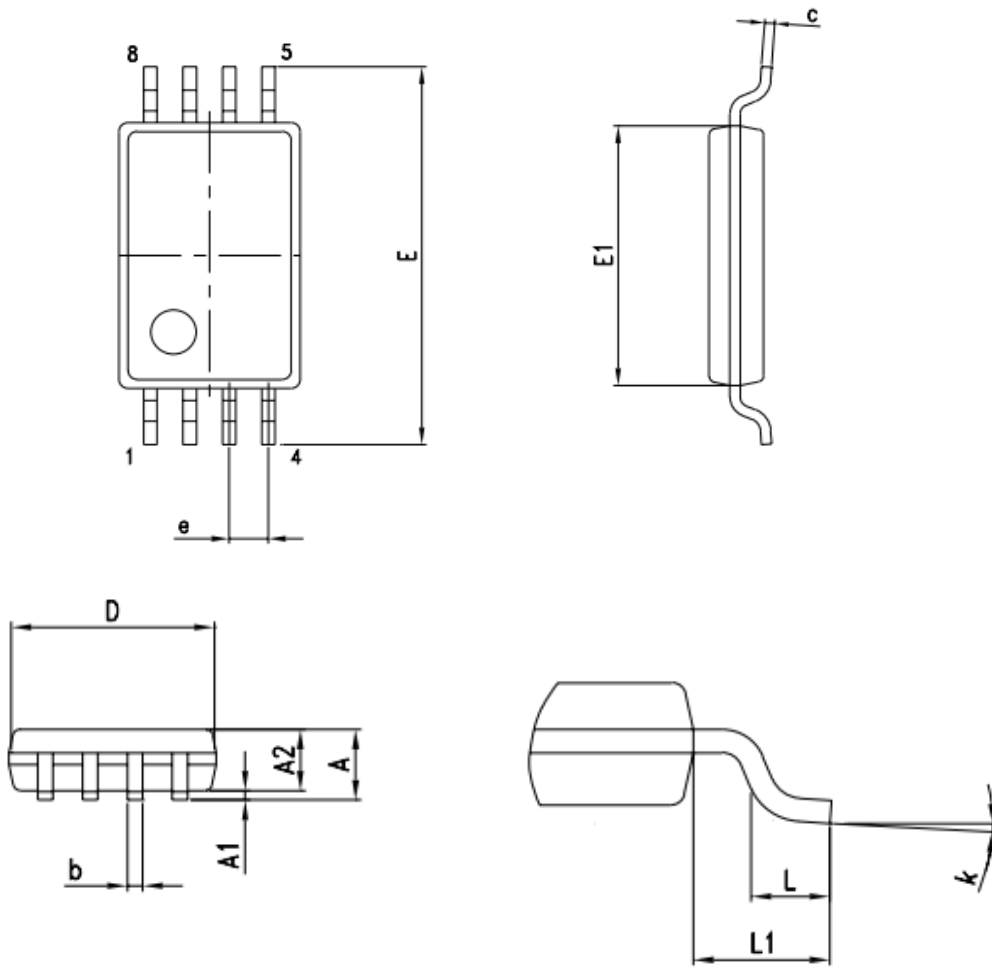
Typical Electrical And Thermal Characteristics (Curves)



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Package Outline Dimensions : TSSOP-8



DIM.	mm.			inch.		
	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.
A	1.05		1.20	0.041		0.047
A1	0.05		0.15	0.002		0.006
A2	0.80		1.05	0.032		0.041
b	0.19		0.30	0.008		0.012
c	0.090		0.20	0.003		0.007
D	2.90		3.10	0.114		0.122
E	6.20		6.60	0.240		0.260
E1	4.30		4.50	0.170		0.177
e		0.65			0.025	
L	0.45		0.75	0.018		0.030
L1		1.00			0.039	
k	0°		8°	0.192		0.208