

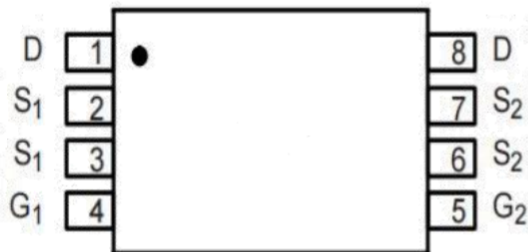
Product Summary

- V_{DS} 20 V
- I_{DS} 7 A
- $R_{DS(ON)}$ (@ $V_{GS} = 4.5V$) $\leq 14m\Omega$
- $R_{DS(ON)}$ (@ $V_{GS} = 2.5V$) $\leq 17m\Omega$

Application

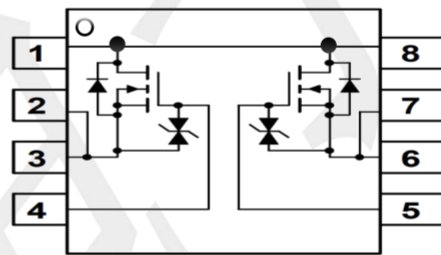
- Battery protection
- Battery Powered Systems
- Power management
- Motor Control
- Portable Power Adaptors

Package and Pin Configuration



TSSOP-8

Circuit diagram



Absolute Maximum Ratings ($T_A = 25^\circ C$ unless otherwise noted)

PARAMETER	SYMBOL	LIMIT	UNIT
Drain-Source Voltage	V_{DS}	20	V
Gate-Source Voltage	V_{GS}	± 10	V
Continuous Drain Current	I_D	7	A
Pulsed Drain Current	I_{DM}	23	A
Maximum Power Dissipation	P_D	1.25	W
Operating Junction Temperature Range	T_J	-55 to +150	$^\circ C$
Storage Temperature Range	T_{stg}	-55 to +150	$^\circ C$

Thermal Characteristic

PARAMETER		Symbol	Value	Unit
Junction-to-Ambient Thermal Resistance	PCB Mount (Note)	$R_{\theta JA}$	111	$^\circ C/W$

Note : The data tested by surface mounted on a 1 inch² FR-4 board with 2OZ copper.

Electrical Characteristics (T_A=25°C unless otherwise noted)

PARAMETER	CONDITIONS	SYMBOL	MIN	TYP	MAX	UNIT
Static						
Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D=250\mu A$	BV_{DSS}	20	--	--	V
Gate-Source Threshold Voltage	$V_{DS}=V_{GS}, I_D=250\mu A$	$V_{GS(th)}$	0.5	0.7	1.2	V
Gate-Source Leakage	$V_{DS}=0V, V_{GS}=\pm 20V$	I_{GSS}	--	--	± 100	nA
Zero Gate Voltage Drain Current	$V_{DS}=16V, V_{GS}=0V$	I_{DSS}	--	0.1	1.0	μA
	$V_{DS}=16V, T_J=55^{\circ}C$		--	1.0	5.0	μA
Drain-Source On-State Resistance (Note 1)	$V_{GS}=4.5V, I_D=4.5A$	$R_{DS(on)}$	--	12	14	m Ω
	$V_{GS}=2.5V, I_D=3.5A$		--	15	17	
Dynamic (Note 2)						
Total Gate Charge (Note 3)	$V_{DS}=10V, I_D=7A, V_{GS}=4.5V$	Q_g	--	11.4	--	nC
Gate-Source Charge (Note 3)		Q_{gs}	--	1.9	--	
Gate-Drain Charge (Note 3)		Q_{gd}	--	3.6	--	
Input Capacitance	$V_{DS}=8V, V_{GS}=0V, F=1.0MHz$	C_{iss}	--	956	--	pF
Output Capacitance		C_{oss}	--	200	--	
Reverse Transfer Capacitance		C_{rss}	--	150	--	
Switching						
Turn-On Delay Time (Note 3)	$V_{DD}=10V, I_D=3.5A, V_{GS}=4.5V, R_G=6\Omega$	$t_{d(on)}$	--	8.1	--	nS
Rise Time (Note 3)		t_r	--	17	--	
Turn-Off Delay Time (Note 3)		$t_{d(off)}$	--	27	--	
Fall Time (Note 3)		t_f	--	8.8	--	
Source-Drain Diode Ratings and Characteristics (Note 2)						
Forward Voltage	$V_{GS}=0V, I_F=1.7A$	V_{SD}	--	0.7	1.2	V
Continuous Source Current	Integral reverse diode in the MOSFET	I_S	--	--	7	A
Pulsed Current (Note 1)		I_{SM}	--	--	23	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 Performance Characteristics

Figure 1: Output Characteristics

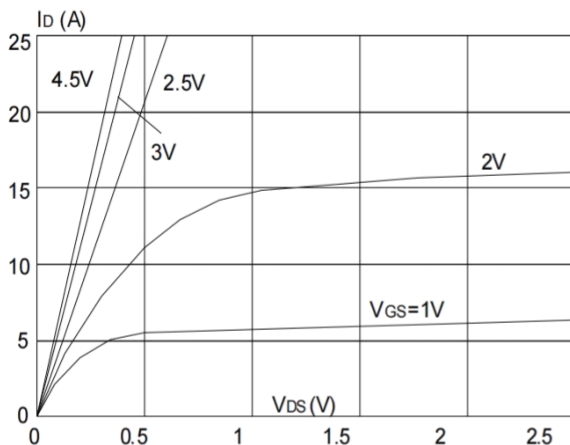


Figure 2: Typical Transfer Characteristics

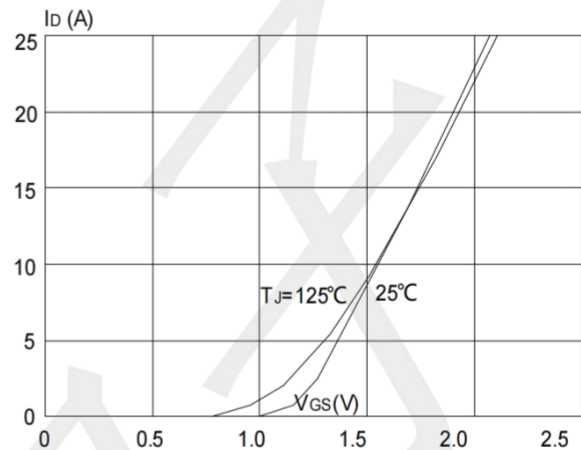


Figure 3: On-resistance vs. Drain Current

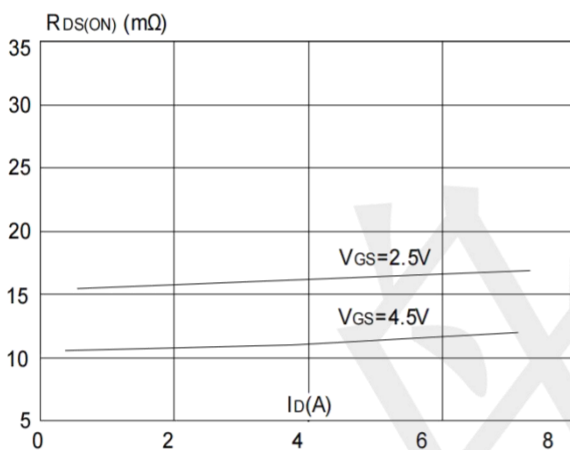


Figure 4: Body Diode Characteristics

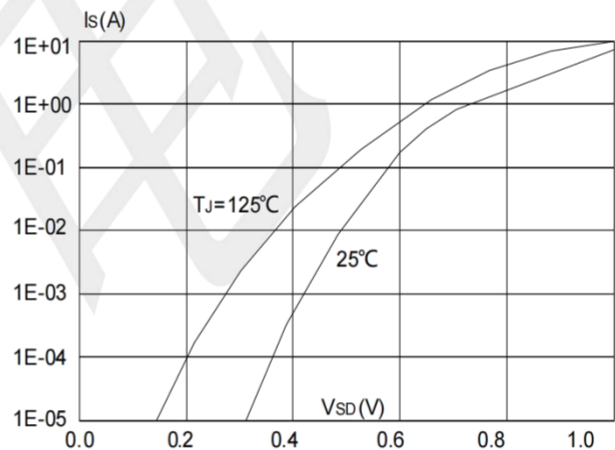


Figure 5: Gate Charge Characteristics

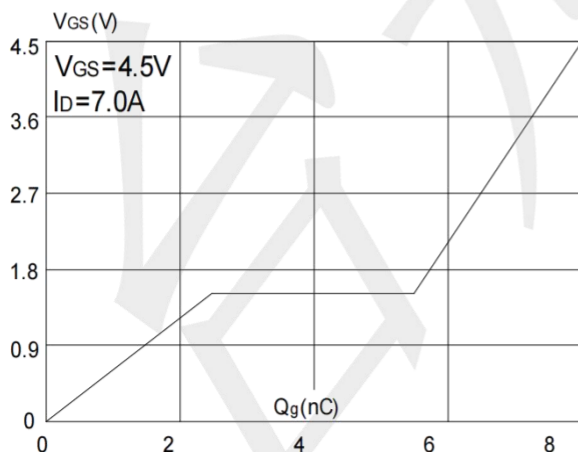
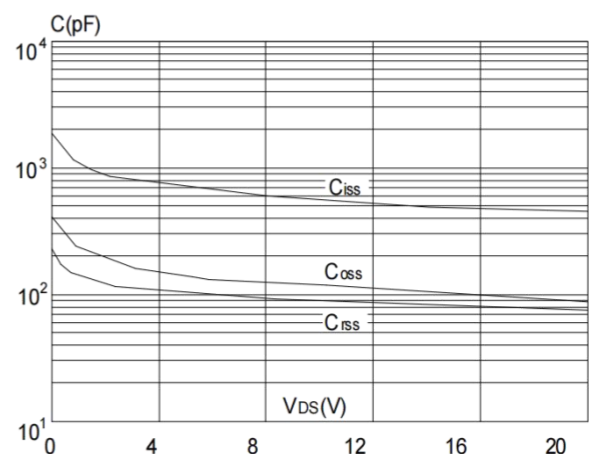


Figure 6: Capacitance Characteristics



Typical Performance Characteristics

Figure 7: Normalized Breakdown Voltage vs. Junction Temperature

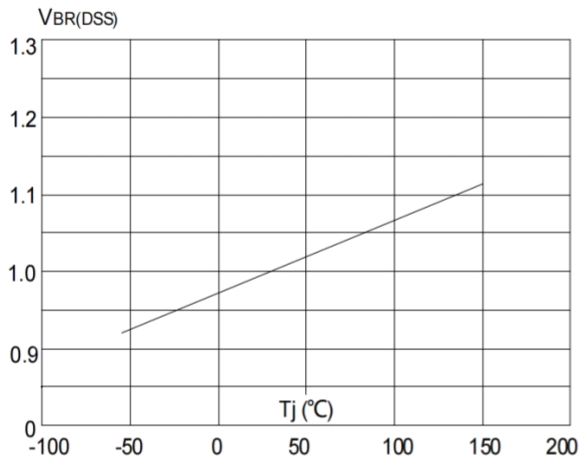


Figure 8: Normalized on Resistance vs. Junction Temperature

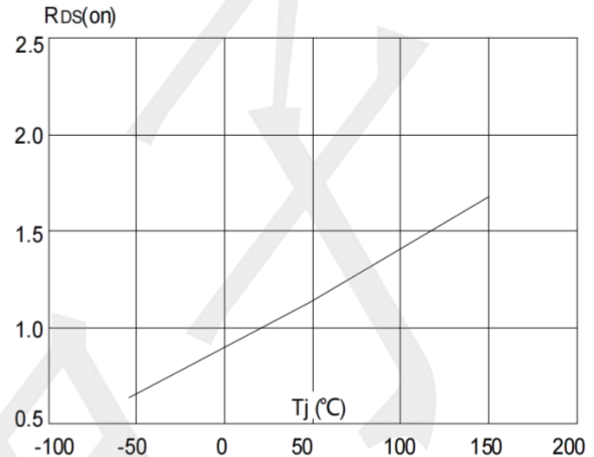


Figure 9: Maximum Safe Operating Area

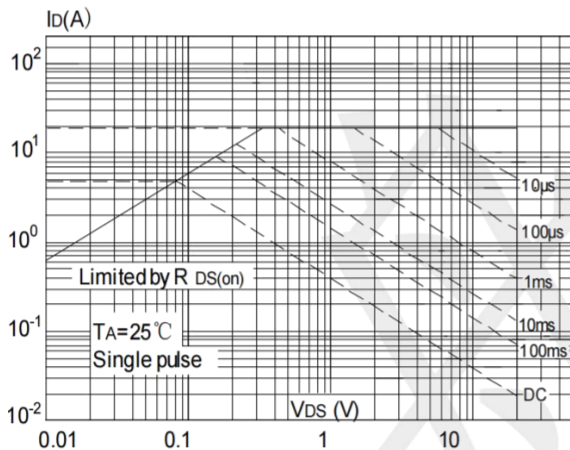


Figure 10: Maximum Continuous Drain Current vs. Ambient Temperature

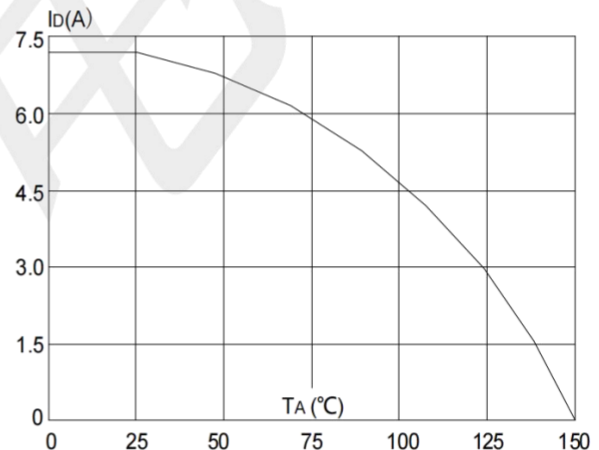
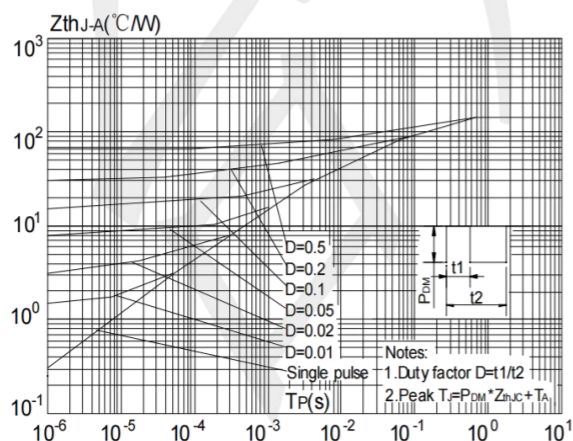
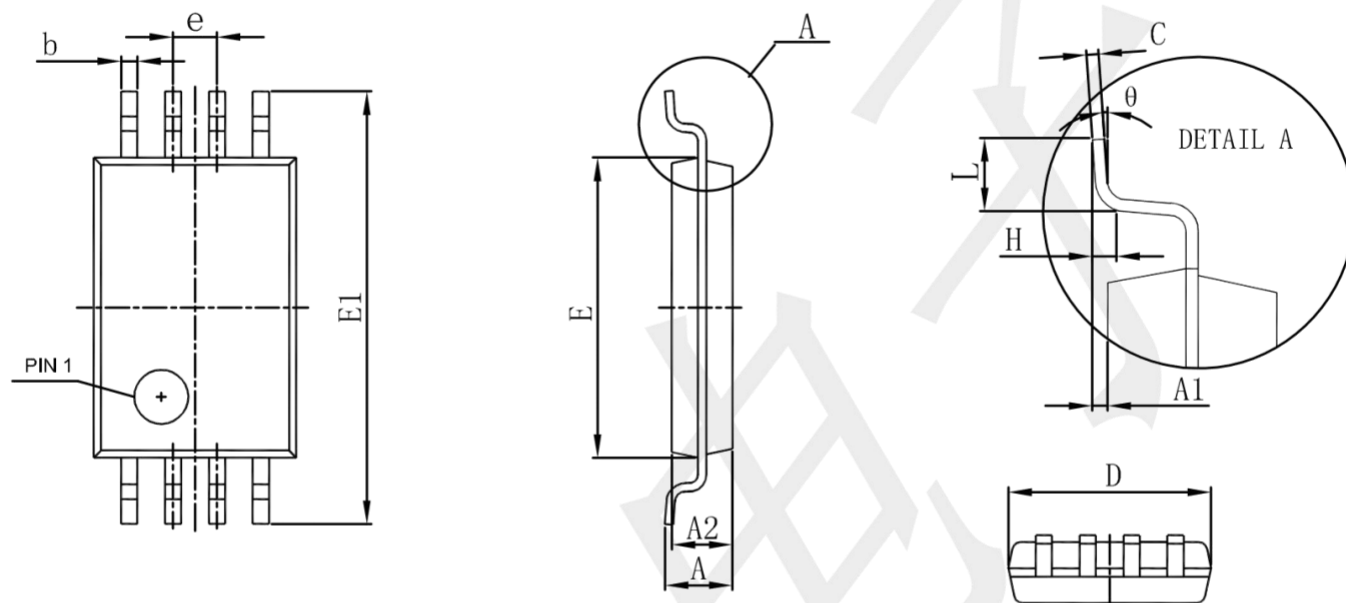


Figure 11: Maximum Effective Transient Thermal Impedance, Junction-to-Ambient



Package Information

TSSOP-8



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
D	2.900	3.100	0.114	0.122
E	4.300	4.500	0.169	0.177
b	0.190	0.300	0.007	0.012
c	0.090	0.200	0.004	0.008
E1	6.250	6.550	0.246	0.258
A		1.200		0.047
A2	0.800	1.000	0.031	0.039
A1	0.050	0.150	0.002	0.006
e	0.65 (BSC)		0.026 (BSC)	
L	0.500	0.700	0.020	0.028
H	0.25(TYP)		0.01(TYP)	
θ	1°	7°	1°	7°