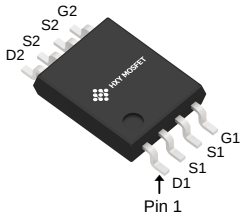
DMG6968UTS

Dual N-Channel Enhancement Mode MOSFET

General Description

The DMG6968UTS is the highest performance trench N-ch MOSFETs with extreme high cell density, which provide excellent RDSON and gate charge for most of the small power switching and load switch applications. The meet the RoHS and Product requirement with full function reliability approved.



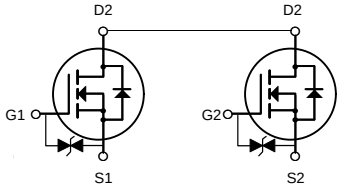
TSSOP-8

General Features

V_{DS} = 20V I_D = 7A

$R_{DS(ON)}$ < 14mΩ @ V_{GS}=4. 5V

$R_{DS(ON)}$ < 17mΩ @ V_{GS}=2. 5V



Dual N-Channel MOSFET

Application

Battery protection

Load switch

Uninterruptible power supply

Package Marking and Ordering Information

Product ID	Pack	Brand	Qty(PCS)
DMG6968UTS	TSSOP-8	HXY MOSFET	5000

Absolute Maximum Ratings (TA=25℃unless otherwise noted)

Symbol	Parameter	Limit	Unit
V_{DS}	Drain-Source Voltage	20	V
V_{GS}	Gate-Source Voltage	±10	V
I_D	Drain Current-Continuous	7	A
I_{DM}	Drain Current-Pulsed (Note 1)	23	A
P_D	Maximum Power Dissipation	1.25	W
T_J,T_{STG}	Operating Junction and Storage Temperature Range	-55 To 150	℃
$R_{\theta JA}$	Thermal Resistance,Junction-to-Ambient (Note 2)	111	℃/W

Electrical Characteristics (T_A=25℃unless otherwise noted)

Parameter	Symbol	Condition	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	BV_{DSS}	V_{GS}=0V I_D=250μA	20	-	-	V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=16V,V_{GS}=0V	-	-	1	μA
Gate-Body Leakage Current	I_{GSS}	V_{GS}=±8V,V_{DS}=0V	-	-	±100	nA
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS},I_D=250μA	0.5	0.7	1.2	V
Drain-Source On-State Resistance	$R_{DS(ON)}$	V_{GS}=4.5V, I_D=4.5A	-	12	14	mΩ
		V_{GS}=2.5V, I_D=3.5A	-	15	17	mΩ
Forward Transconductance	g_{FS}	V_{DS}=5V,I_D=3.5A	-	20	-	S
Input Capacitance	C_{lss}	V_{DS}=8V,V_{GS}=0V, F=1.0MHz	-	955	-	PF
Output Capacitance	C_{oss}		-	200	-	PF
Reverse Transfer Capacitance	C_{rss}		-	150	-	PF
Turn-on Delay Time	$t_{d(on)}$	V_{DD}=10V,I_D=3.5A V_{GS}=4.5V,R_{GEN}=6Ω	-	8	-.	nS
Turn-on Rise Time	t_r		-	17	-	nS
Turn-Off Delay Time	$t_{d(off)}$		-	27	-	nS
Turn-Off Fall Time	t_f		-	8.8	-	nS
Total Gate Charge	Q_g	V_{DS}=10V,I_D=7A, V_{GS}=4.5V	-	11.3	-	nC
Gate-Source Charge	Q_{gs}		-	1.89	-	nC
Gate-Drain Charge	Q_{gd}		-	3.56	-	nC
Diode Forward Voltage (Note 3)	V_{SD}	V_{GS}=0V,I_S=1.7A	-	0.75	1.2	V
Diode Forward Current (Note 2)	I_S		-	-	7	A

Notes:

1. Repetitive Rating: Pulse width limited by maximum junction temperature.
2. Surface Mounted on FR4 Board, t ≤ 10 sec.
3. Pulse Test: Pulse Width ≤ 300μs, Duty Cycle ≤ 2%.
4. Guaranteed by design, not subject to production

Typical Characteristics

Figure1: Output Characteristics

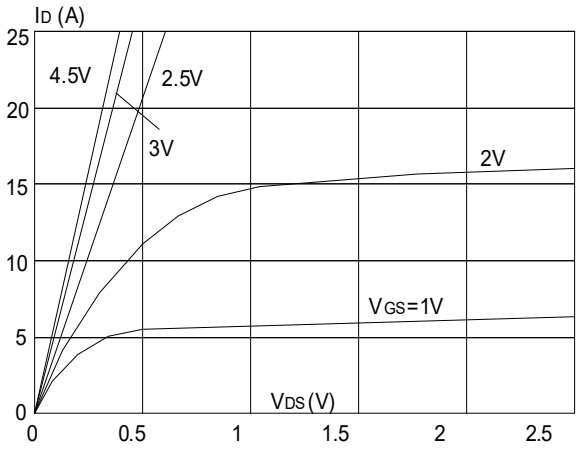


Figure 2: Typical Transfer Characteristics

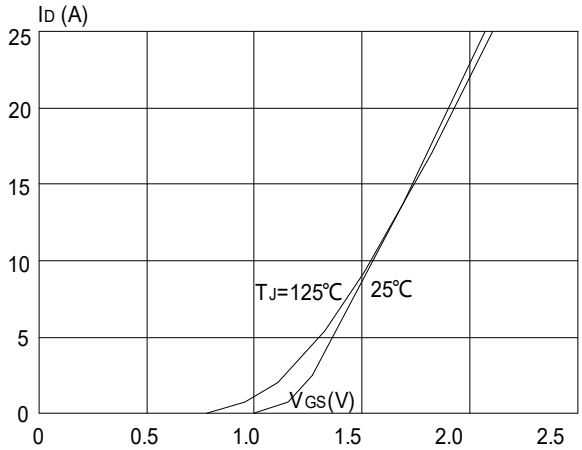


Figure 3: On-resistance vs. Drain Current

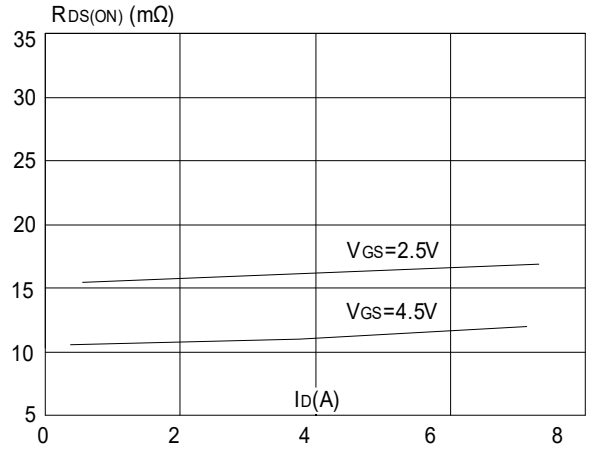


Figure 4: Body Diode Characteristics

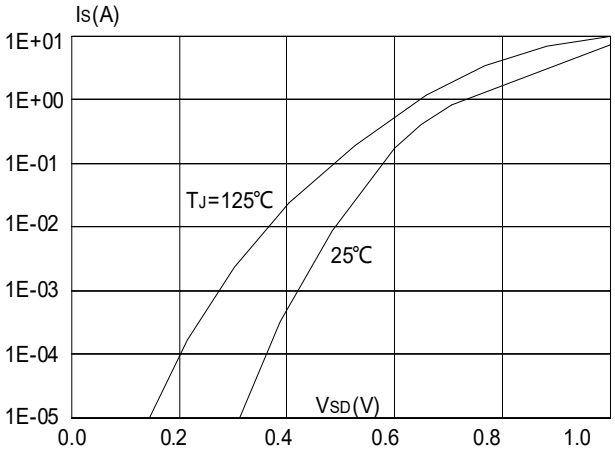


Figure 5: Gate Charge Characteristics

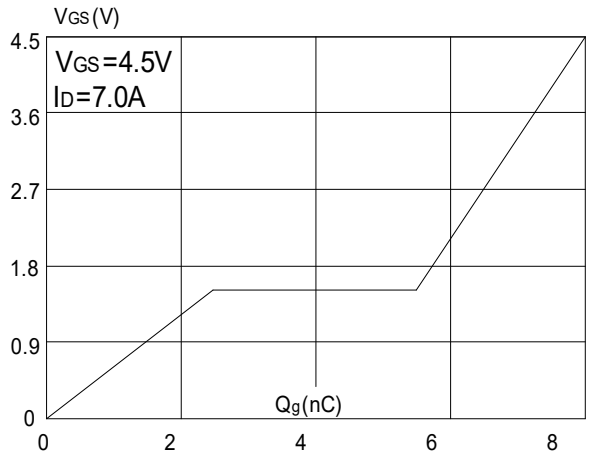


Figure 6: Capacitance Characteristics

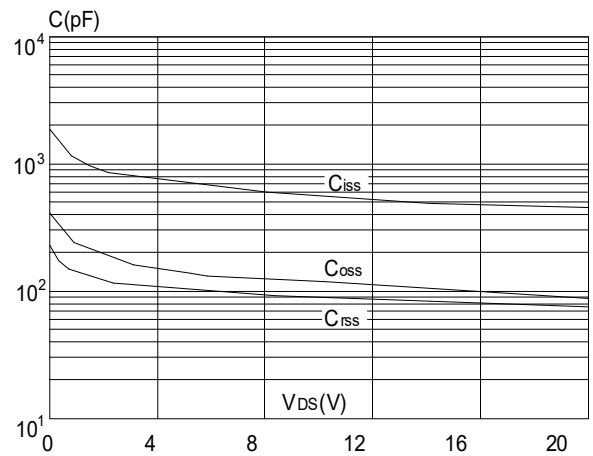


Figure 7: Normalized Breakdown Voltage vs. Junction Temperature

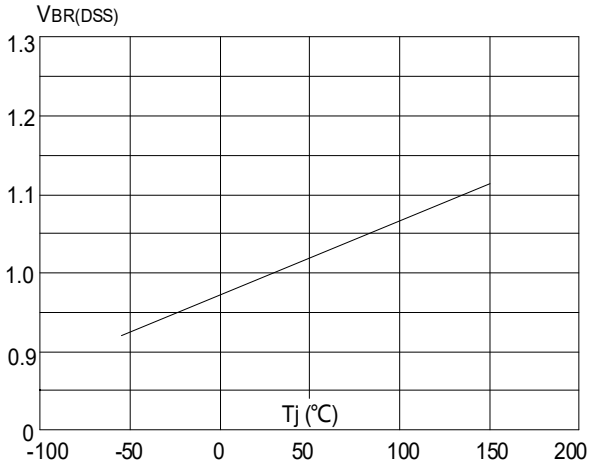


Figure 8: Normalized on Resistance vs. Junction Temperature

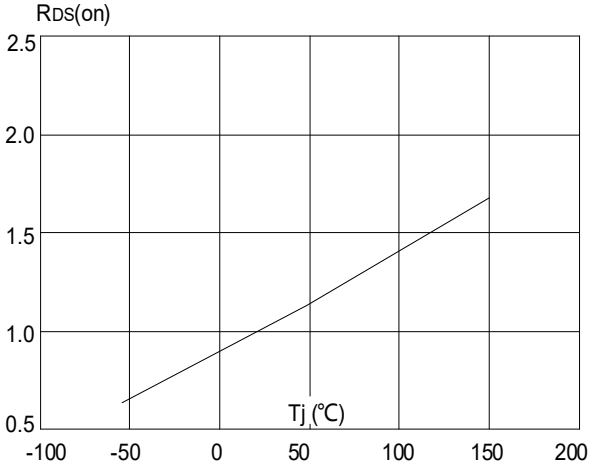


Figure 9: Maximum Safe Operating Area

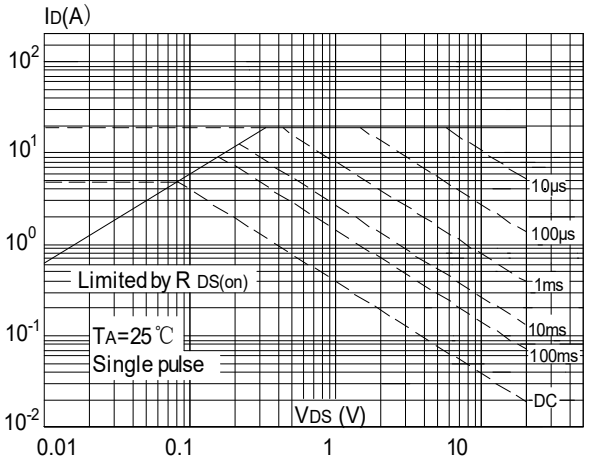


Figure 10: Maximum Continuous Drain Current vs· Ambient Temperature

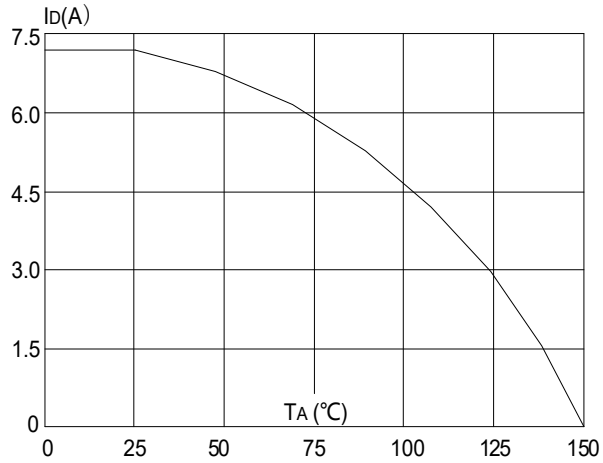
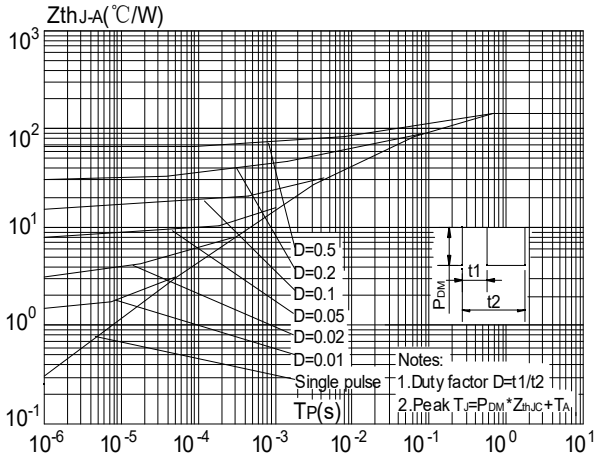
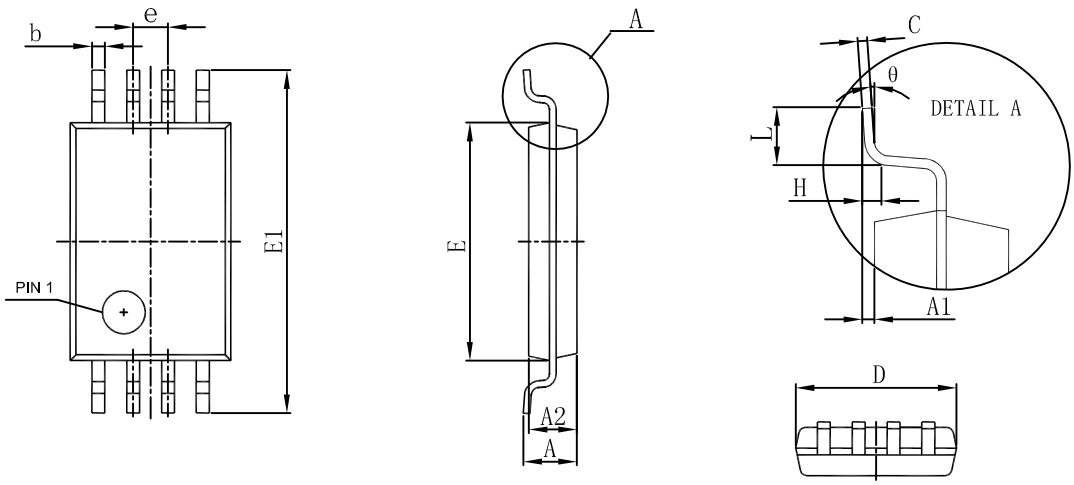


Figure.11: Maximum Effective Transient Thermal Impedance, Junction-to-Ambient



TSSOP-8 Package Outline Dimensions



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°

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