



N-Channel Enhancement Mode Field Effect Transistor

Common Drain, ESD Protection

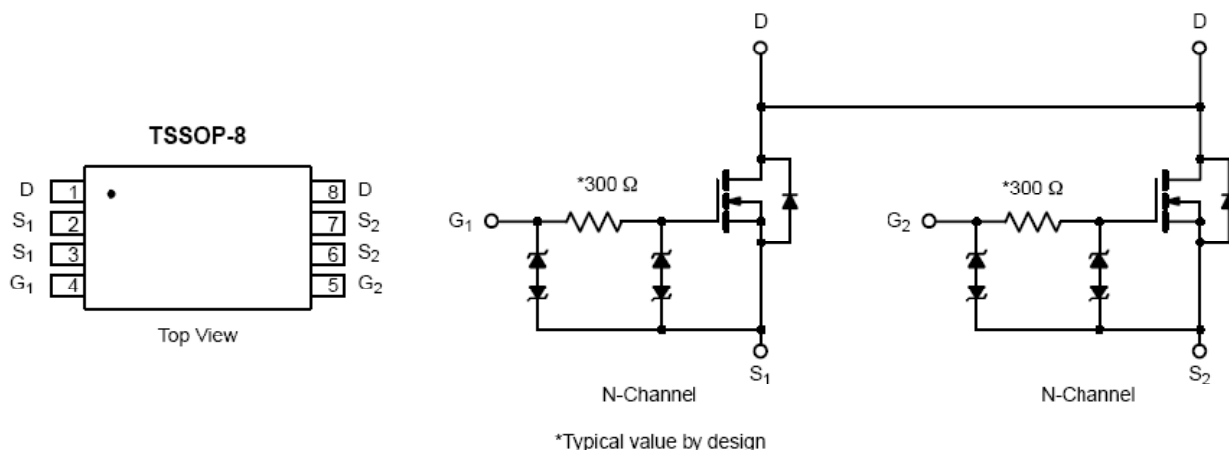
FEATURES

- Super high dense cell design for low $R_{DS(ON)}$
- Rugged and reliable
- Simple drive requirement
- TSSOP-8 package

PRODUCT SUMMARY		
V _{DSS}	I _D	R _{DS(ON)} (mΩ) Typ
20V	6.5A	18@ V _{GS} =4.5V
		23 @ V _{GS} =2.5V
ESD Protected: 3000 V		



NOTE: The MT6968 is available in a lead-free package



ABSOLUTE MAXIMUM RATINGS ($T_A=25^\circ C$ unless otherwise noted)

Parameter	Symbol	MOSFET	Units
Drain-Source Voltage	V_{DS}	20	V
Gate-Source Voltage	V_{GS}	± 12	V
Continuous Drain Current ^A	I_D	6.5	A
Pulsed Drain Current ^B	I_{DM}	30	A
Continuous Source Current (Diode Conduction) ^a	I_S	1.5	A
Power Dissipation	P_D	1.5	W
Junction and Storage Temperature Range	T_J, T_{STG}	-55 to 150	$^\circ C$

THERMAL CHARACTERISTICS

Thermal Resistance, Junction-to Ambient ^a	$R_{th JA}$	70	$^\circ C/W$
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ELECTRICAL CHARACTERISTICS ($T_A=25^{\circ}\text{C}$ unless otherwise noted)

Parameter	Symbol	Condition	Min	Typ	Max	Unit
OFF CHARACTERISTICS						
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	I _{GSS}	V _{GS} =±8V,V _{DS} =0V			±200	nA
ON CHARACTERITICS						
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} ,I _D =-250μA	0.8	1.0	1.2	V
Drain-Source On-State Resistance	R _{DS(ON)}	V _{GS} =4.5V,I _D =6.5A		18	23	mΩ
		V _{GS} =2.5V,I _D =5.5A		23	28	
Forward Transconductance	g _{FS}	V _{GS} =5V,I _D =6.5A		30		S
DAYNAMIC CHARACTERISTICS						
Input Capacitance	C _{ISS}	V _{DS} =-10V,V _{GS} =0V f=1.0MHz		540		pF
Output Capacitance	C _{OSS}			72		pF
Reverse Transfer Capacitance	C _{RSS}			49		pF
SWITCHING CHARACTERISISTICS						
Turn-On Delay Time	t _{D(ON)}	V _{DD} =10V I _D =1A, V _{GEN} =4.5V R _L =10ohm R _{GEN} =6ohm		245		ns
Rise Time	t _r			330		ns
Turn-Off Delay Time	t _{D(OFF)}			860		ns
Fall Time	t _f			510		ns
Total Gate Charge	Q _g	V _{DS} =10V,I _D =6.5A V _{GS} =4.5V		12	18	nC
Gate-Source Charge	Q _{gs}			2.2		nC
Gate-Drain Charge	Q _{gd}			3.6		nC

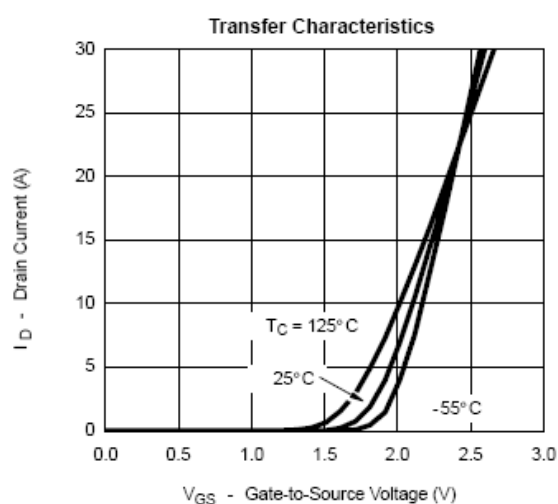
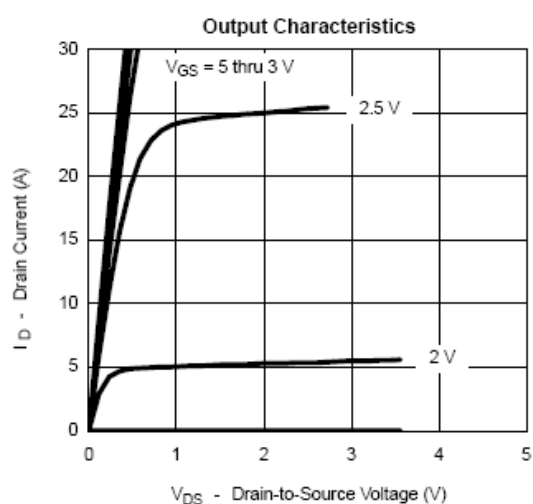
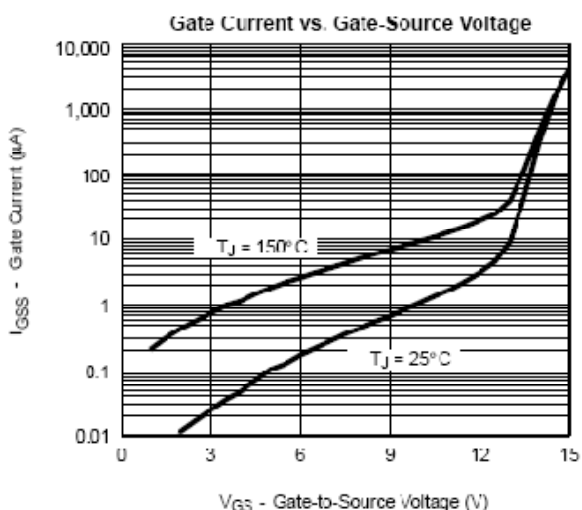
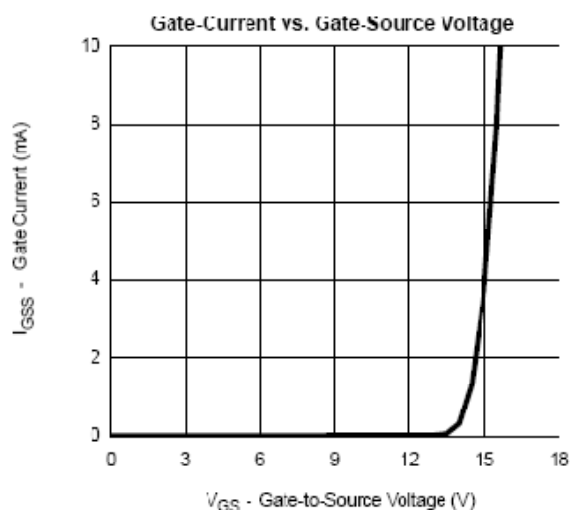
ELECTRICAL CHARACTERISTICS (TA=25°C unless otherwise noted)

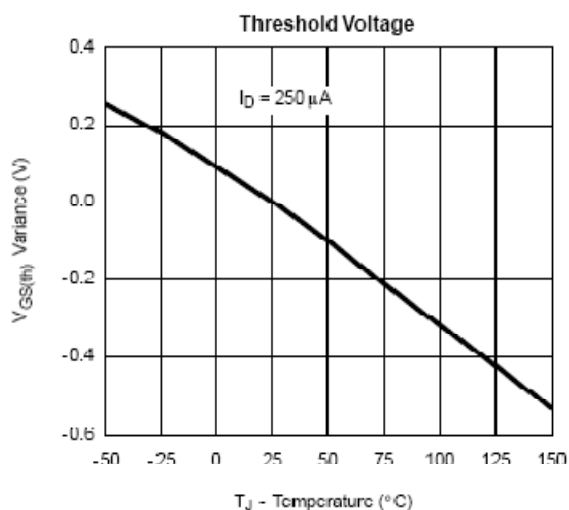
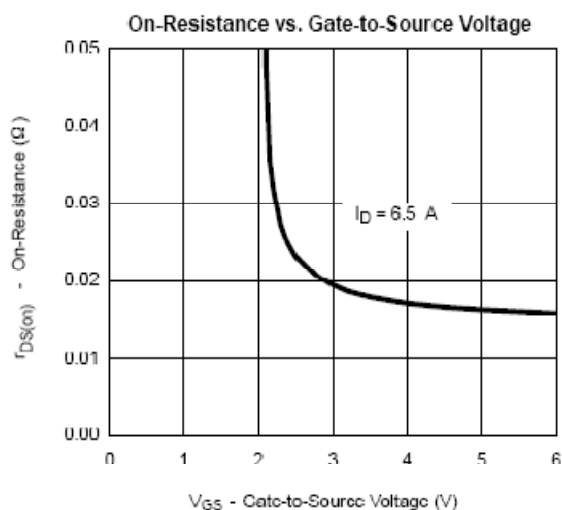
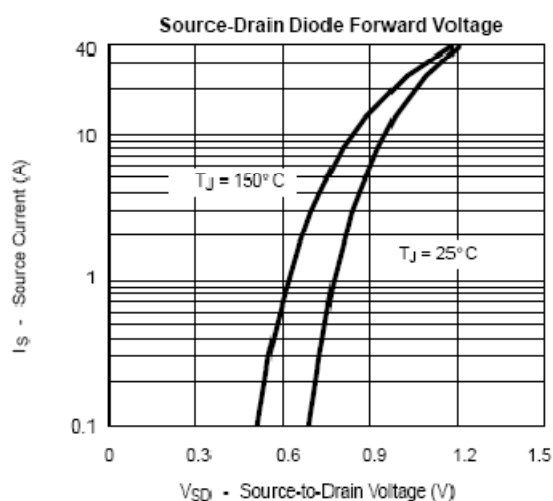
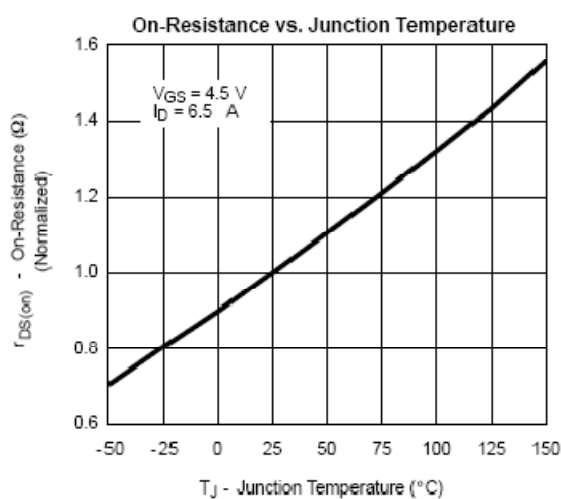
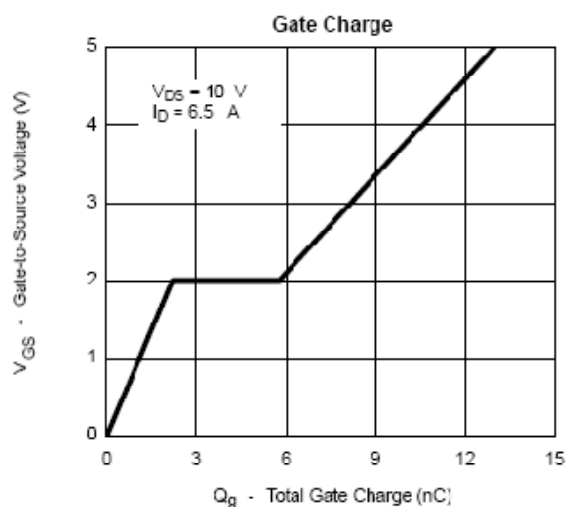
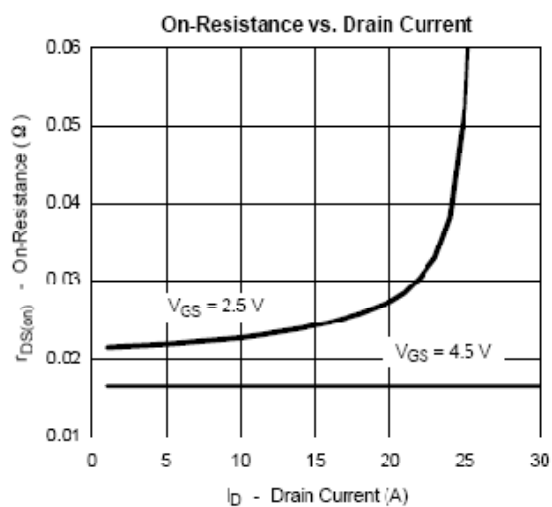
Parameter	Symbol	Condition	Min	Typ	Max	Unit
DRAIN-SOURCE DIODE CHARACTERISTICS						
Diode Forward Voltage	V _{SD}	V _{GS} =0V, I _S =1.5A		0.71	1.2	V

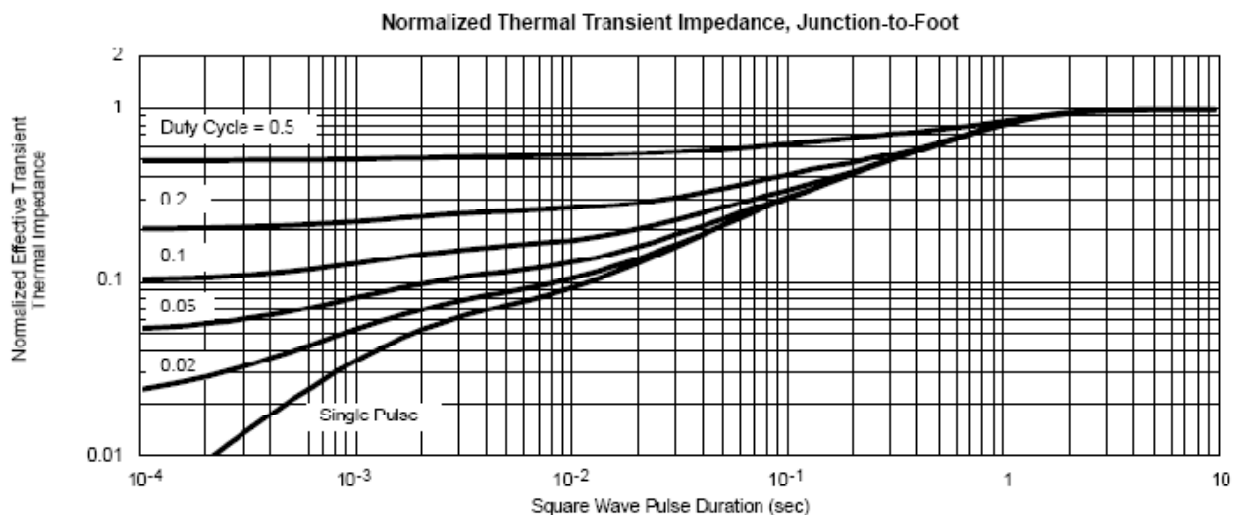
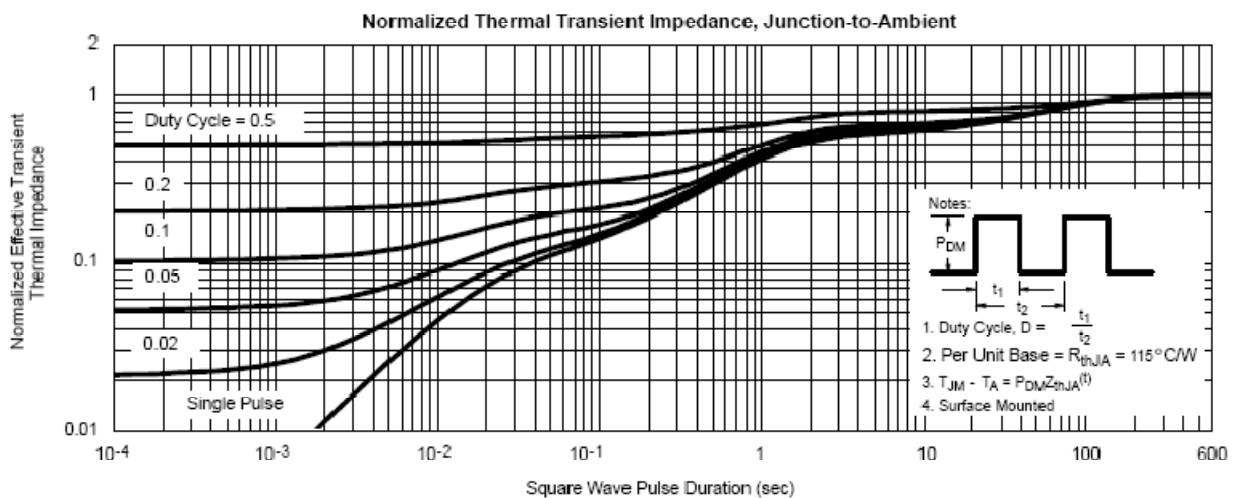
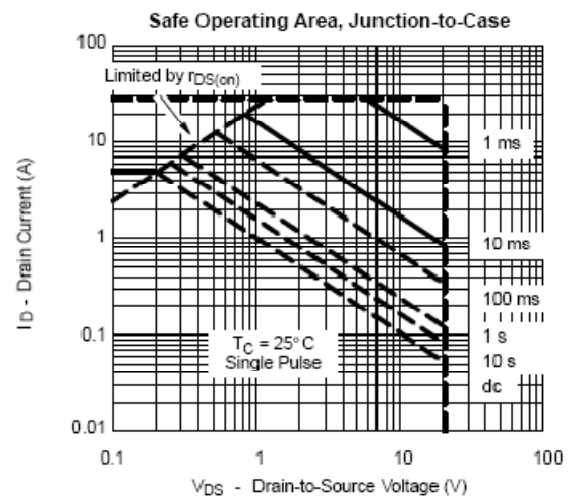
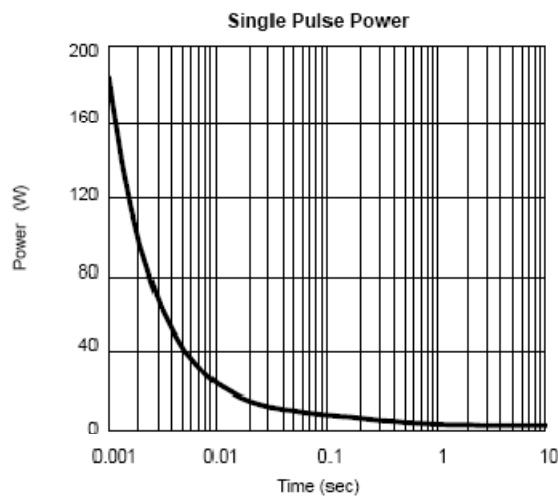
Notes

- Surface Mounted on FR4 Board, t ≤ 10sec
- Pulse Test: Pulse Width ≤ 300Us, Duty Cycle ≤ 2%
- Guaranteed by design, not subject to production testing.

TYPICAL ELECTRICAL AND THERMAL CHARACTERISTICS









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