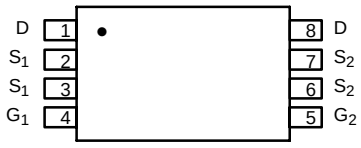
Dual N-Channel 2.5-V (G-S) MOSFET
Common Drain, ESD Protection

FEATURES

- TrenchFET® Power MOSFET
- ESD Protected: 3000 V

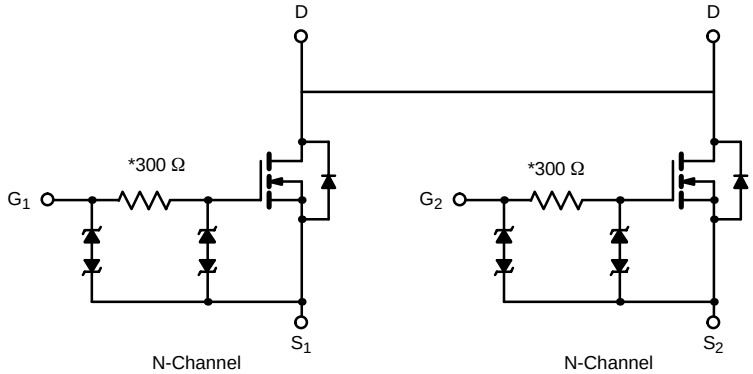
PRODUCT SUMMARY		
V_{DS} (V)	$r_{DS(on)}$ (Ω)	I_D (A)
20	0.022 @ V_{GS} = 4.5 V	6.5
	0.030 @ V_{GS} = 2.5 V	5.5

TSSOP-8



Top View

Ordering Information:
Si6968BEDQ-T1 (with Tape and Reel)



*Typical value by design

ABSOLUTE MAXIMUM RATINGS (T_A = 25°C UNLESS OTHERWISE NOTED)					
Parameter		Symbol	10 secs	Steady State	Unit
Drain-Source Voltage		V_{DS}	20		V
Gate-Source Voltage		V_{GS}	±12		
Continuous Drain Current (T_J = 150°C)[a]	T_A = 25°C	I_D	6.5	5.2	A
	T_A = 70°C		5.5	3.5	
Pulsed Drain Current		I_{DM}	30		
Continuous Source Current (Diode Conduction)[a]		I_S	1.5	1.0	
Maximum Power Dissipation[a]	T_A = 25°C	P_D	1.5	1.0	W
	T_A = 70°C		0.96	0.64	
Operating Junction and Storage Temperature Range		T_J, T_{stg}	-55 to 150		°C

THERMAL RESISTANCE RATINGS					
Parameter		Symbol	Typ	Max	Unit
Maximum Junction-to-Ambient[a]	t ≤ 10 sec	R_{thJA}	72	83	°C/W
	Steady-State		100	120	
Maximum Junction-to-Foot (Drain)	Steady-State	R_{thJF}	55	70	

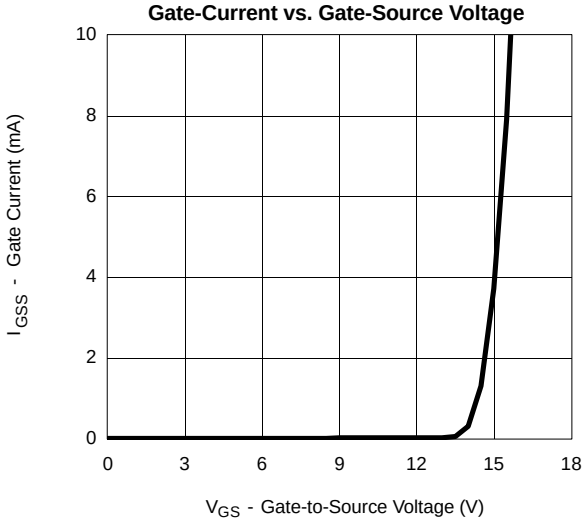
Notes
a. Surface Mounted on FR4 Board, t ≤ 10 sec.

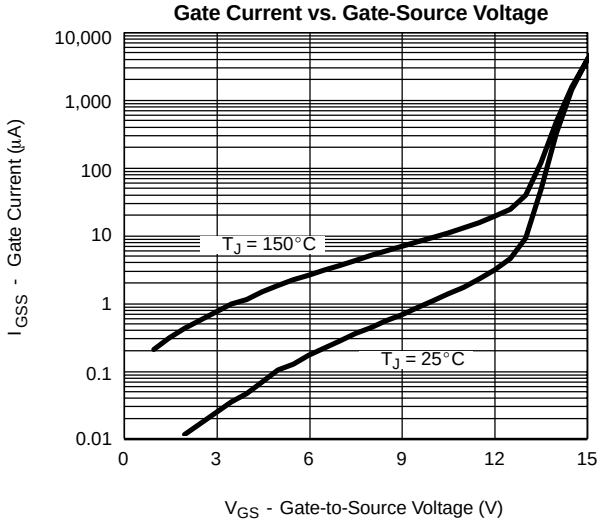
SPECIFICATIONS (T_J = 25°C UNLESS OTHERWISE NOTED)

Parameter	Symbol	Test Condition	Min	Typ[a]	Max	Unit
Static						
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = 250 µA	0.6		1.6	V
Gate-Body Leakage	I_{GSS}	V_{DS} = 0 V, V_{GS} = ±4.5 V			±200	nA
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} = 16 V, V_{GS} = 0 V			1	µA
		V_{DS} = 16 V, V_{GS} = 0 V, T_J = 70°C			25	
On-State Drain Current[b]	$I_{D(on)}$	V_{DS} ≤ 5 V, V_{GS} = 4.5 V	30			A
Drain-Source On-State Resistance[b]	$r_{DS(on)}$	V_{GS} = 4.5 V, I_D = 6.5 A		0.0165	0.022	Ω
		V_{GS} = 2.5 V, I_D = 5.5 A		0.023	0.030	
Forward Transconductance[b]	g_{fs}	V_{DS} = 10 V, I_D = 6.5 A		30		S
Diode Forward Voltage[b]	V_{SD}	I_S = 1.5 A, V_{GS} = 0 V		0.71	1.2	V
Dynamic[a]						
Total Gate Charge	Q_g	V_{DS} = 10 V, V_{GS} = 4.5 V, I_D = 6.5 A		12	18	nC
Gate-Source Charge	Q_{gs}			2.2		
Gate-Drain Charge	Q_{gd}			3.6		
Turn-On Delay Time	$t_{d(on)}$	V_{DD} = 10 V, R_L = 10 Ω I_D ≅ 1 A, V_{GEN} = 4.5 V, R_G = 6 Ω		245	365	ns
Rise Time	t_r			330	495	
Turn-Off Delay Time	$t_{d(off)}$			860	1300	
Fall Time	t_f			510	765	

Notes
a. For design aid only; not subject to production testing.
b. Pulse test; pulse width ≤ 300 µs, duty cycle ≤ 2%.

TYPICAL CHARACTERISTICS (25°C UNLESS NOTED)





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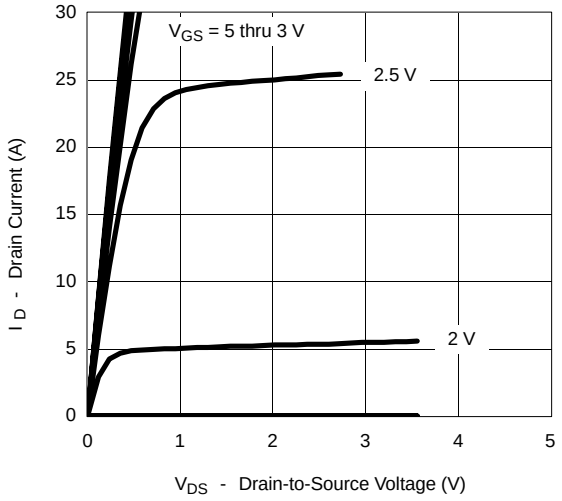
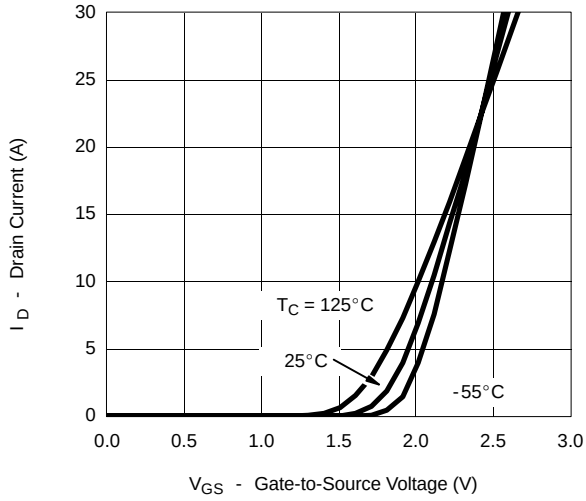
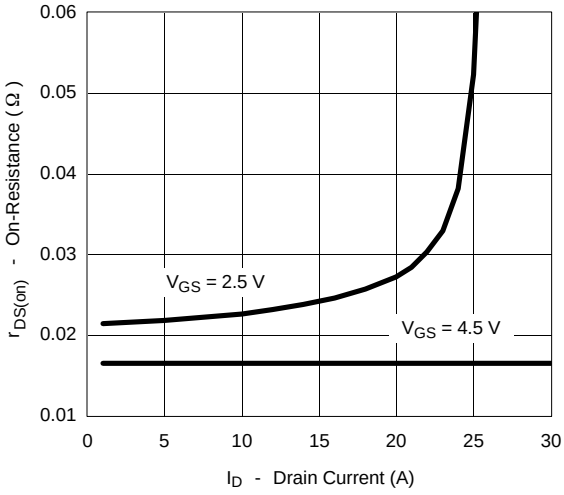
Output Characteristics



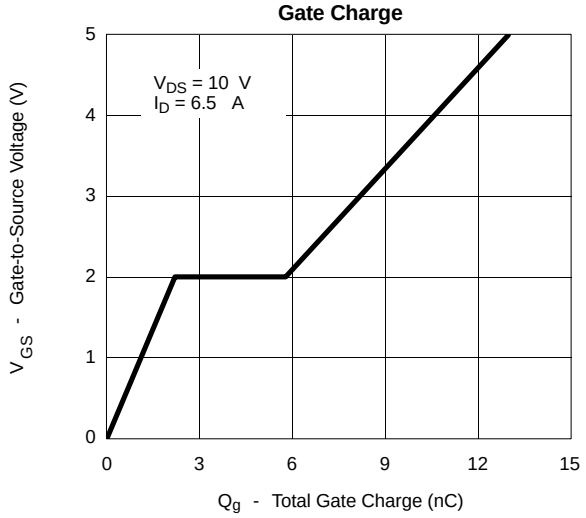
Transfer Characteristics



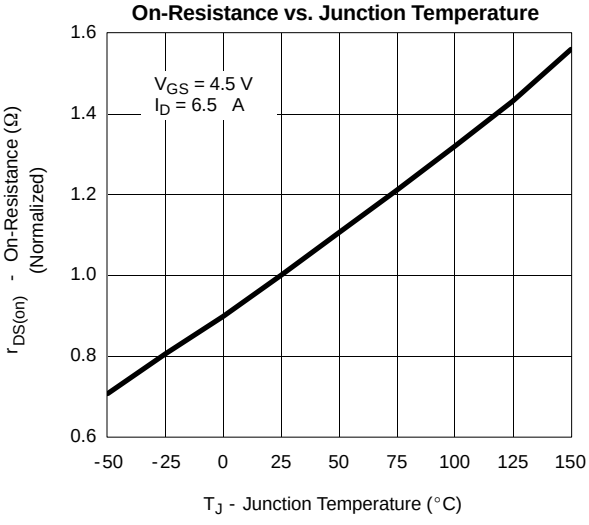
On-Resistance vs. Drain Current



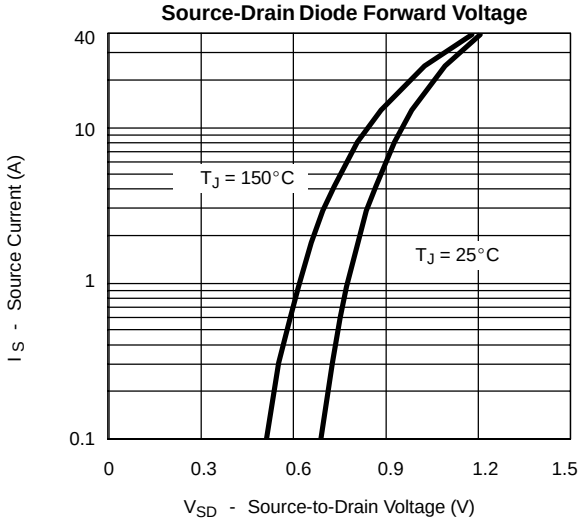
Gate Charge



On-Resistance vs. Junction Temperature

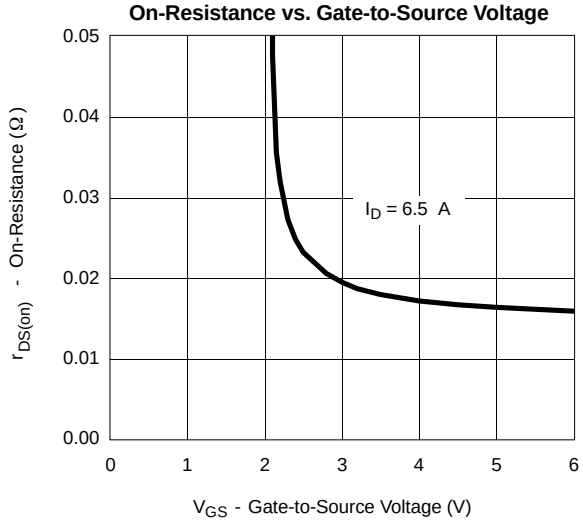


Source-Drain Diode Forward Voltage

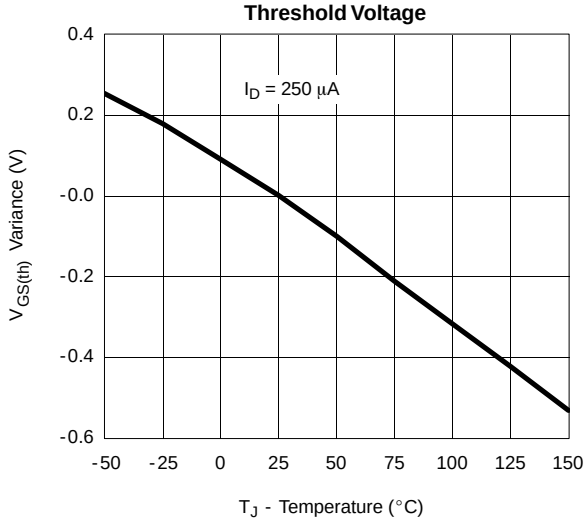


TYPICAL CHARACTERISTICS (25°C UNLESS NOTED)

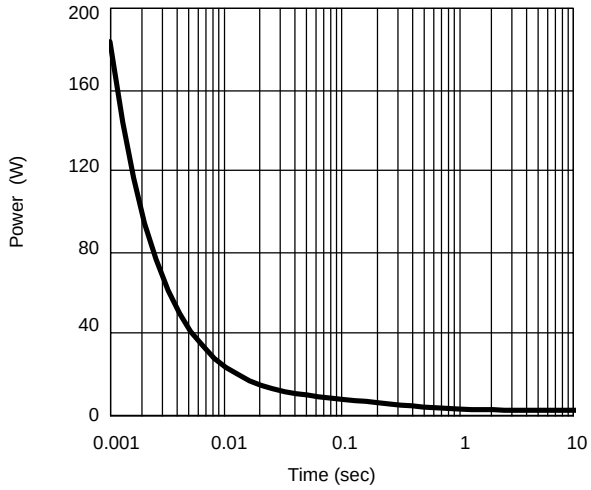
On-Resistance vs. Gate-to-Source Voltage



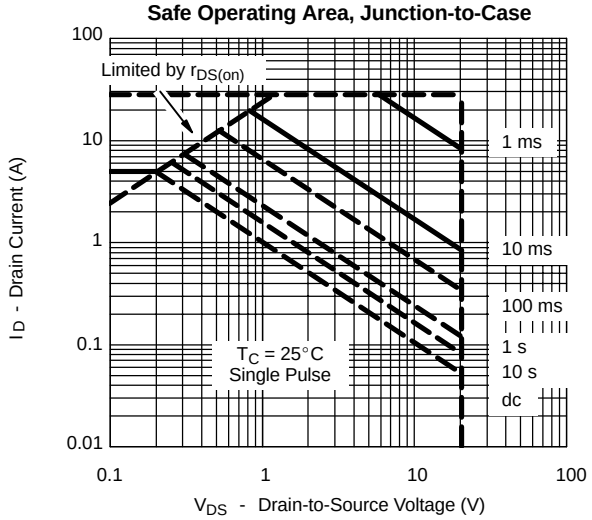
Threshold Voltage



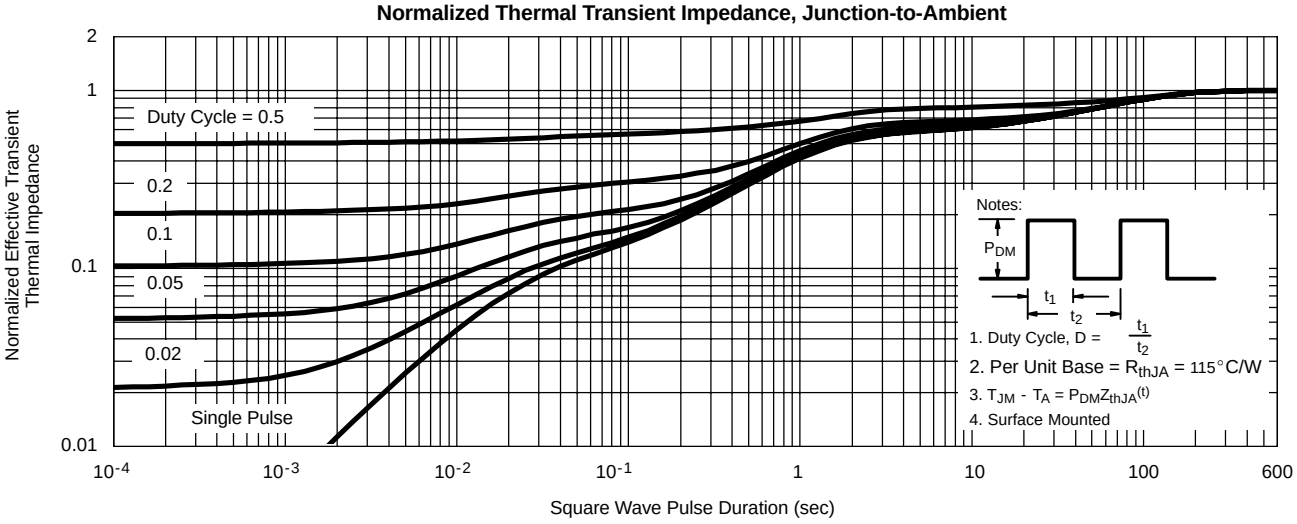
Single Pulse Power



Safe Operating Area, Junction-to-Case



Normalized Thermal Transient Impedance, Junction-to-Ambient



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