
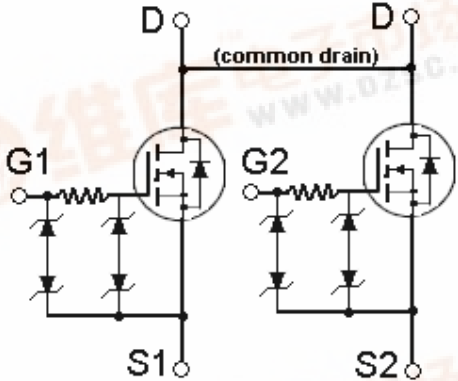
	<h2>TSM6968D</h2> <h3>20V Dual N-Channel MOSFET w/ESD Protected</h3>																																					
 <p>Pin assignment:</p> <ol style="list-style-type: none"> 1. Drain 2. Source 1 3. Source 1 4. Gate 1 5. Gate 2 6. Source 2 7. Source 2 8. Drain 	<p>$V_{DS} = 20V$ $R_{DS(on)}, V_{GS} @ 4.5V, I_{DS} @ 6.5A = 22m\Omega$ $R_{DS(on)}, V_{GS} @ 2.5V, I_{DS} @ 5.5A = 29m\Omega$</p>																																					
<h4>Features</h4> <ul style="list-style-type: none"> Advanced trench process technology High density cell design for ultra low on-resistance Excellent thermal and electrical capabilities Specially designed for Li-ion battery packs. Battery switch application 	<h4>Block Diagram</h4> <p style="text-align: center;">Dual N-channel</p> 																																					
<h4>Ordering Information</h4> <table border="1" data-bbox="232 989 773 1121"> <thead> <tr> <th>Part No.</th> <th>Packing</th> <th>Package</th> </tr> </thead> <tbody> <tr> <td>TSM6968DCA</td> <td>Tape & Reel 3,000/per reel</td> <td>TSSOP-8</td> </tr> </tbody> </table>	Part No.	Packing	Package	TSM6968DCA	Tape & Reel 3,000/per reel	TSSOP-8																																
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<p>Note: Surface mounted on FR4 board $t \leq 10sec$.</p>																																						

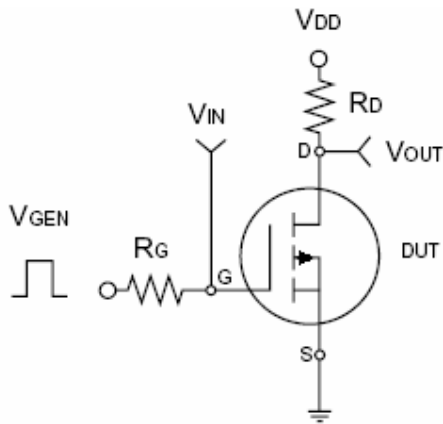


Electrical Characteristics

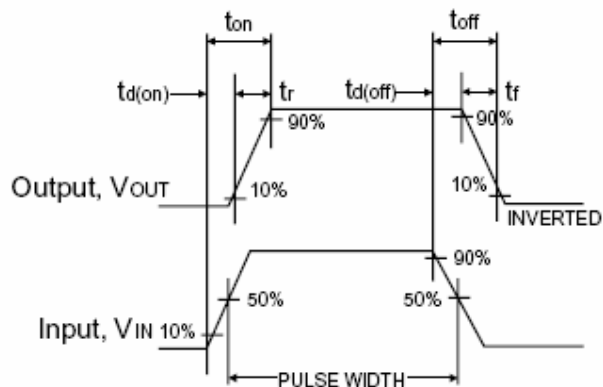
Rate $I_D = 6.5A$, ($T_a = 25^\circ C$ unless otherwise noted)

Parameter	Conditions	Symbol	Min	Typ	Max	Unit
Static						
Drain-Source Breakdown Voltage	$V_{GS} = 0V, I_D = 250\mu A$	BV_{DSS}	20	--	--	V
Drain-Source On-State Resistance	$V_{GS} = 4.5V, I_D = 6.5A$	$R_{DS(ON)}$	--	15	22	m Ω
Drain-Source On-State Resistance	$V_{GS} = 2.5V, I_D = 5.5A$	$R_{DS(ON)}$	--	20	30	
Gate Threshold Voltage	$V_{DS} = V_{GS}, I_D = 250\mu A$	$V_{GS(TH)}$	0.5	0.85	--	V
Zero Gate Voltage Drain Current	$V_{DS} = 20V, V_{GS} = 0V$	I_{DSS}	--	--	1.0	μA
Gate Body Leakage	$V_{GS} = \pm 12V, V_{DS} = 0V$	I_{GSS}	--	--	± 10	μA
On-State Drain Current	$V_{GS} = 4.5V, V_{DS} \geq 5V$	$I_{D(ON)}$	30	--	--	A
Forward Transconductance	$V_{DS} = 10V, I_D = 6.5A$	g_{fs}	--	30	--	S
Dynamic						
Total Gate Charge	$V_{DS} = 10V, I_D = 6.5A,$ $V_{GS} = 4.5V$	Q_g	--	15.5	30	nC
Gate-Source Charge		Q_{gs}	--	2	--	
Gate-Drain Charge		Q_{gd}	--	3.5	--	
Turn-On Delay Time	$V_{DD} = 10V, R_L = 10\Omega,$ $I_D = 1A, V_{GEN} = 4.5V,$ $R_G = 6\Omega$	$t_{d(on)}$	--	75	100	nS
Turn-On Rise Time		t_r	--	125	150	
Turn-Off Delay Time		$t_{d(off)}$	--	600	720	
Turn-Off Fall Time		t_f	--	300	360	
Input Capacitance	$V_{DS} = 10V, V_{GS} = 0V,$ $f = 1.0MHz$	C_{iss}	--	1336	--	pF
Output Capacitance		C_{oss}	--	220	--	
Reverse Transfer Capacitance		C_{rss}	--	130	--	
Source-Drain Diode						
Max. Diode Forward Current		I_S	--	--	1.5	A
Diode Forward Voltage	$I_S = 1.5A, V_{GS} = 0V$	V_{SD}	--	0.6	1.2	V

Note : pulse test: pulse width $\leq 300\mu S$, duty cycle $\leq 2\%$



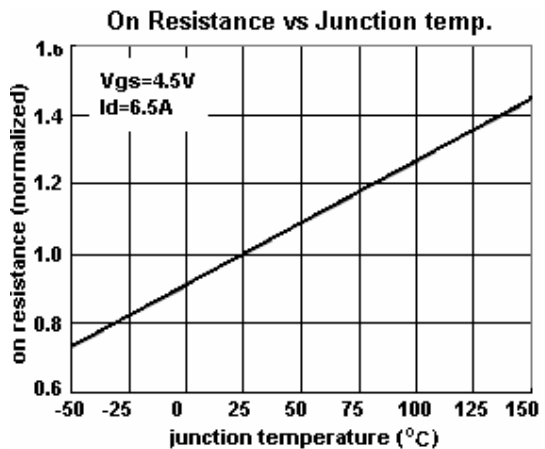
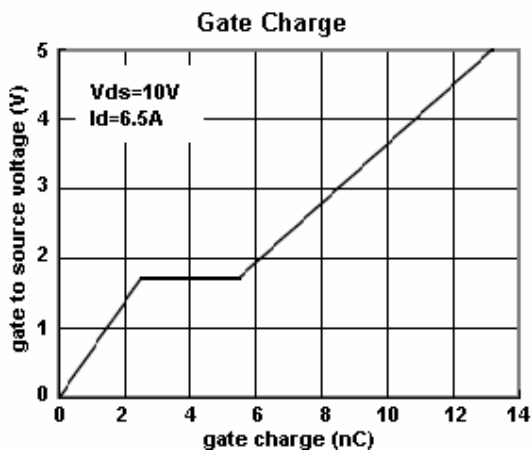
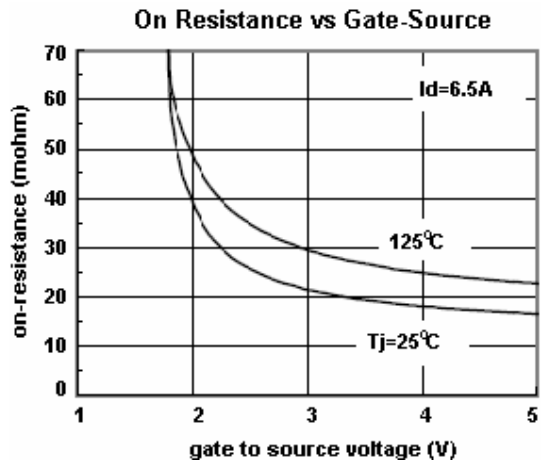
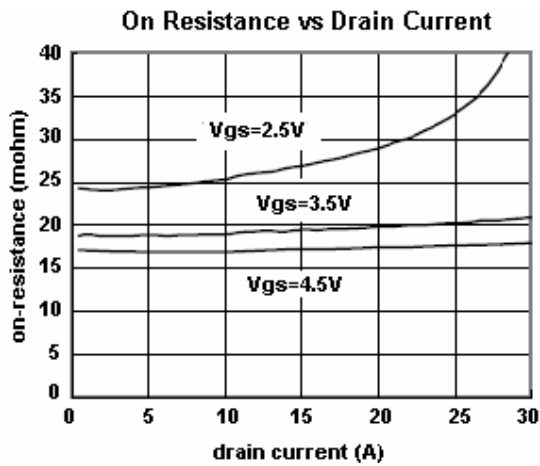
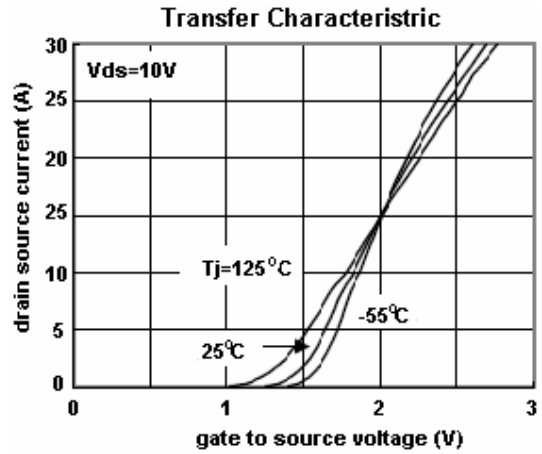
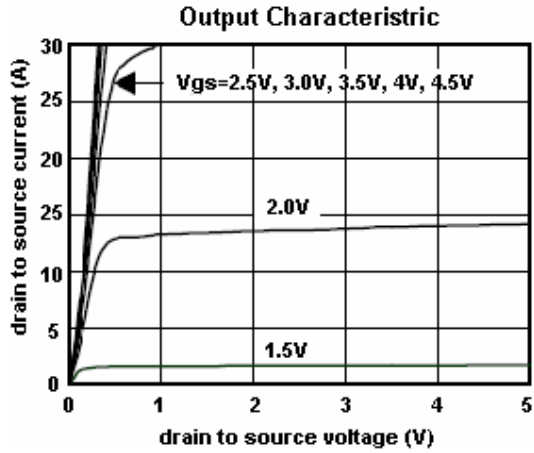
Switching Test Circuit



Switchin Waveforms

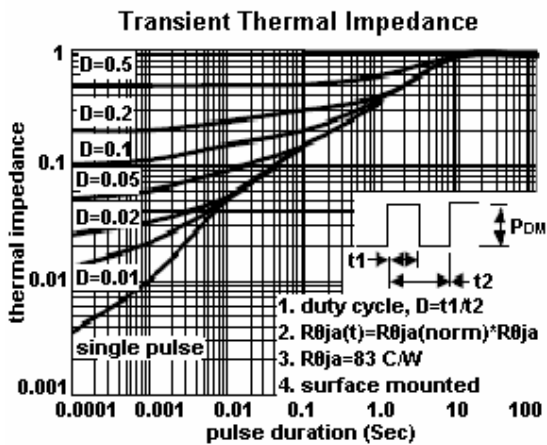
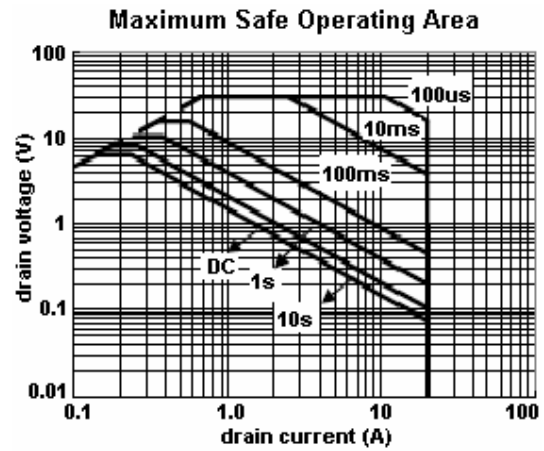
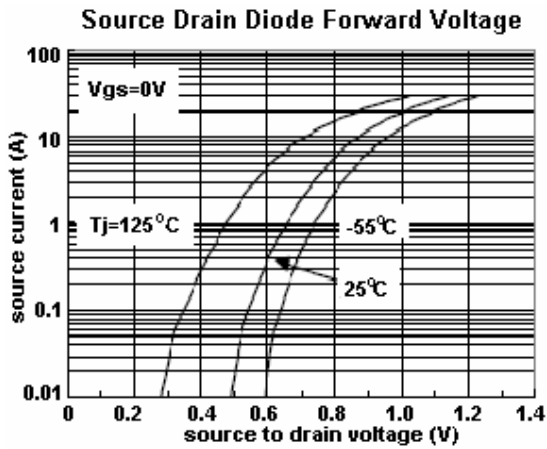
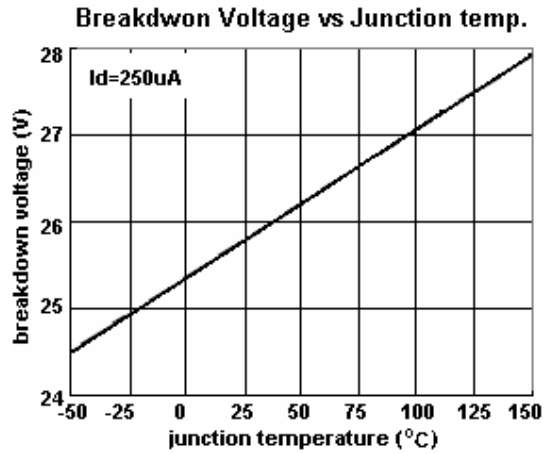
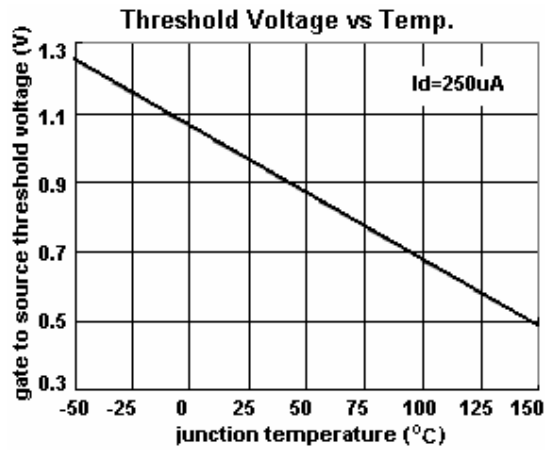


Typical Characteristics Curve (Ta = 25 °C unless otherwise noted)



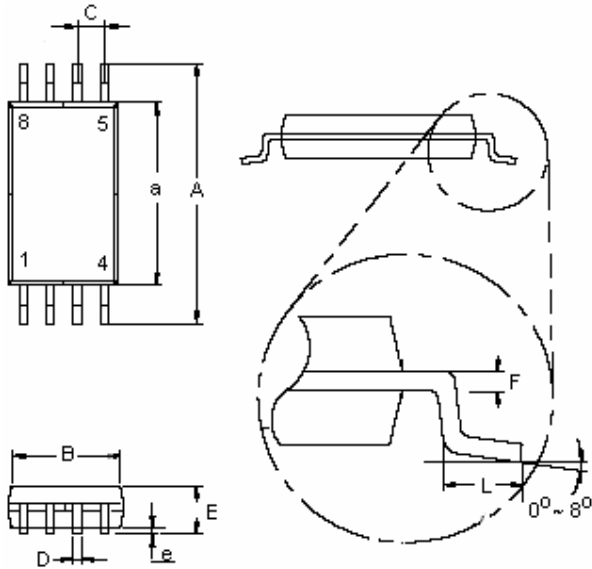


Electrical Characteristics Curve (continued)





TSSOP-8 Mechanical Drawing



TSSOP-8 DIMENSION				
DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	6.20	6.60	0.244	0.260
a	4.30	4.50	0.170	0.177
B	2.90	3.10	0.114	0.122
C	0.65 (typ)		0.025 (typ)	
D	0.25	0.30	0.010	0.019
E	1.05	1.20	0.041	0.049
e	0.05	0.15	0.002	0.009
F	0.127		0.005	
L	0.50	0.70	0.020	0.028