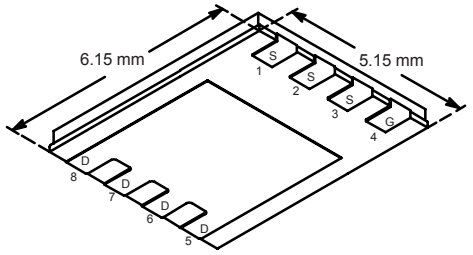
N-Channel MOSFET

SI7898DP (KI7898DP)

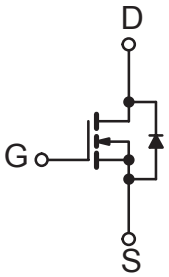
PowerPAK® SO-8 (DFN5X6)



Bottom View

■ Features

- V_{DS} (V) = 150V
- I_D = 4.8 A (V_{GS} = 10V)
- $R_{DS(ON)}$ < 87mΩ (V_{GS} = 10V)
- $R_{DS(ON)}$ < 98mΩ (V_{GS} = 4.5V)



■ Absolute Maximum Ratings Ta = 25℃

Parameter		Symbol	10s	Steady State	Unit
Drain-Source Voltage		V_{DS}	150		V
Gate-Source Voltage		V_{GS}	±20		
Continuous Drain Current	Ta=25℃	I_D	4.8	3	A
	Ta=70℃		3.8	2.4	
Pulsed Drain Current		I_{DM}	25		
Avalanche Current	L=0.1mH	I_{AS}	10		
Power Dissipation	Ta=25℃	P_D	5	1.9	W
	Ta=70℃		3.2	1.2	
Thermal Resistance.Junction- to-Ambient		R_{thJA}	25	65	℃/W
Thermal Resistance.Junction- to-Case		R_{thJC}	-	2.6	
Soldering Recommendations (Peak Temperature)			260		℃
Junction Temperature		T_J	150		
Storage Temperature Range		T_{stg}	-55 to 150		

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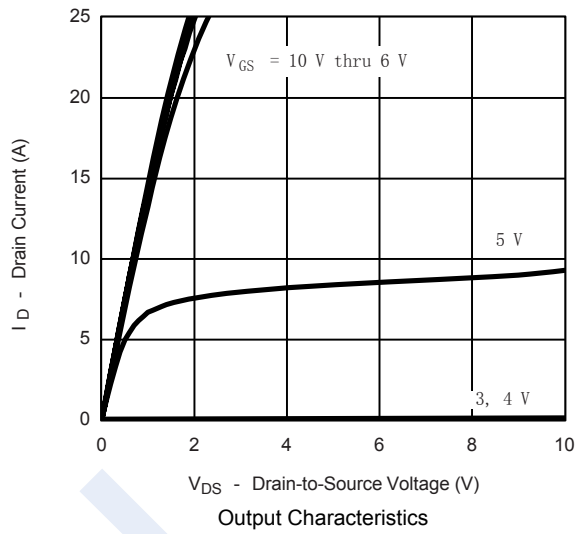
■ Electrical Characteristics Ta = 25℃

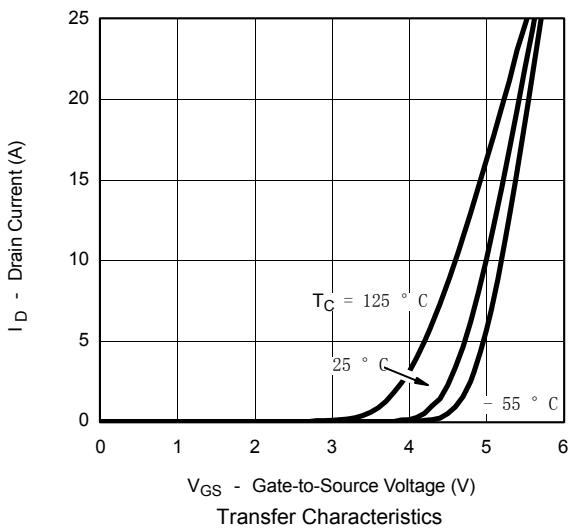
Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	V_{DSS}	I_D=250μA, V_{GS}=0V	150			V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=150V, V_{GS}=0V			1	μA
		V_{DS}=150V, V_{GS}=0V, T_J=55℃			5	
Gate-Body Leakage Current	I_{GSS}	V_{DS}=0V, V_{GS}=±20V			±100	nA
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS}, I_D=250μA	2		4	V
Static Drain-Source On-Resistance	$R_{DS(ON)}$	V_{GS}=10V, I_D=3.5A (Note.1)			87	mΩ
		V_{GS}=6V, I_D=3A (Note.1)			98	
On State Drain Current	$I_{D(ON)}$	V_{GS}=10V, V_{DS}=5V (Note.1)	25			A
Forward Transconductance	g_{FS}	V_{DS}=15V, I_D=5A (Note.1)		15		S
Gate Resistance	R_g	V_{GS}=0V, V_{DS}=0V, f=1MHz	0.5		2.5	Ω
Total Gate Charge	Q_g	V_{GS}=10V, V_{DS}=75V, I_D=3.5A			21	nC
Gate Source Charge	Q_{gs}			3.2		
Gate Drain Charge	Q_{gd}			6		
Turn-On DelayTime	$t_{d(on)}$	V_{DD} = 75 V, R_L = 21 Ω I_D ≅ 3.5 A, V_{GEN} = 10 V, R_g = 6 Ω			14	ns
Turn-On Rise Time	t_r				15	
Turn-Off DelayTime	$t_{d(off)}$				35	
Turn-Off Fall Time	t_f				25	
Body Diode Reverse Recovery Time	t_{rr}	I_F= 2.5A, dI/dt= 100A/μs			70	
Continuous Source Current	I_S				2.5	A
Diode Forward Voltage	V_{SD}	I_S=2.5A,V_{GS}=0V			1.2	V

Note.1:Pulse test; pulse width ≤ 300 μs, duty cycle ≤ 2 %.

■ Typical Characterisitics



Output Characteristics



Transfer Characteristics

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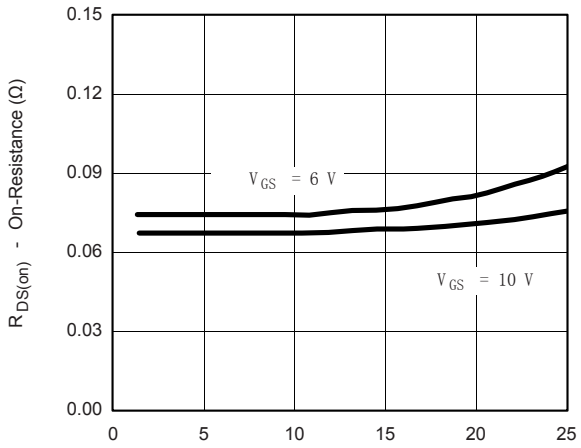
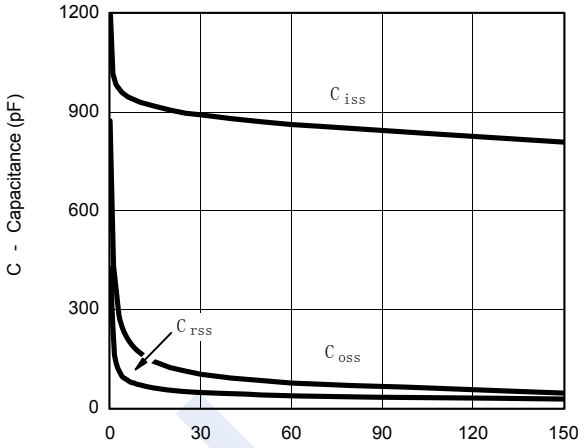
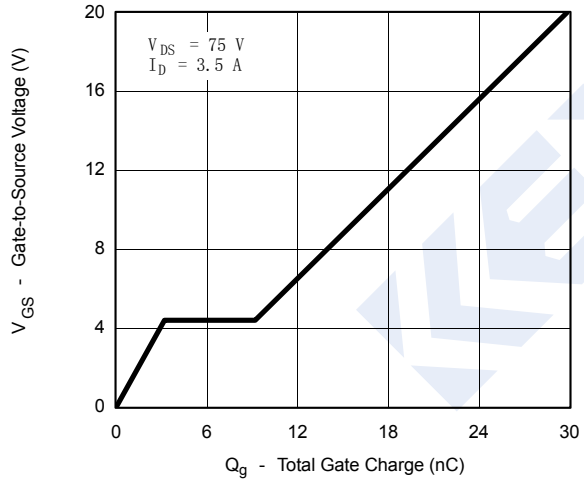
■ Typical Characterisitics



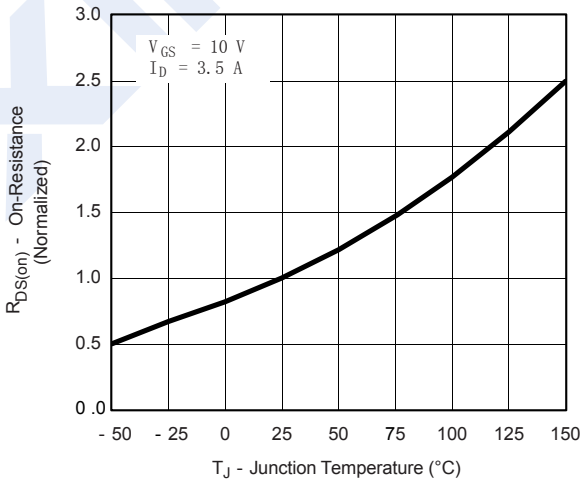
On-Resistance vs. Drain Current



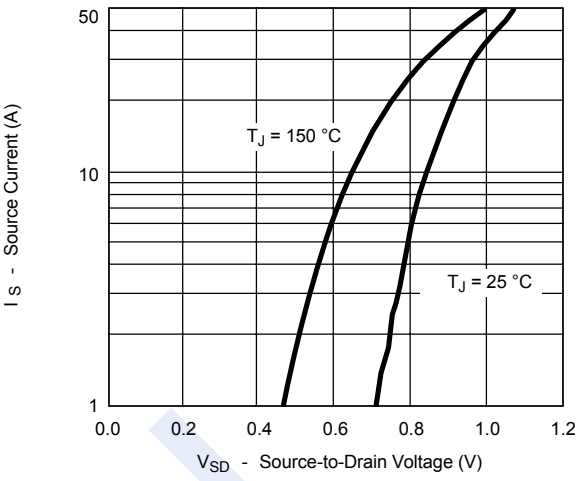
Capacitance



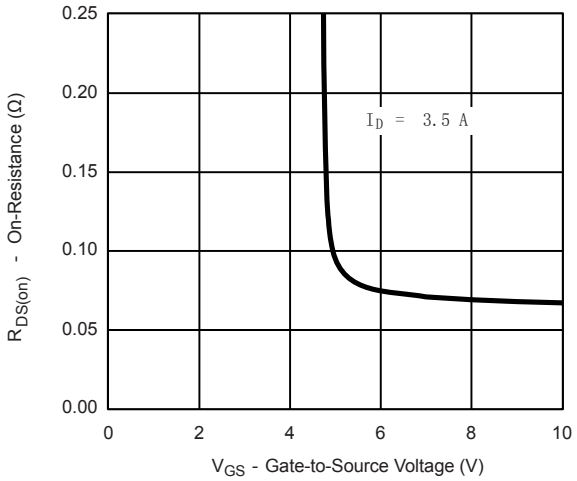
Gate Charge



On-Resistance vs. Junction Temperature



Source-Drain Diode Forward Voltage



On-Resistance vs. Gate-to-Source Voltage

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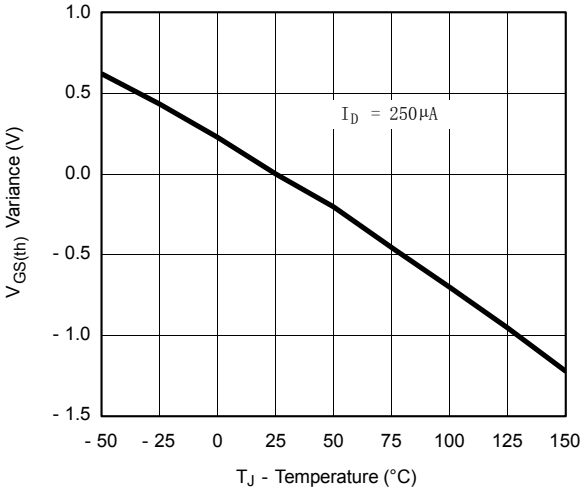
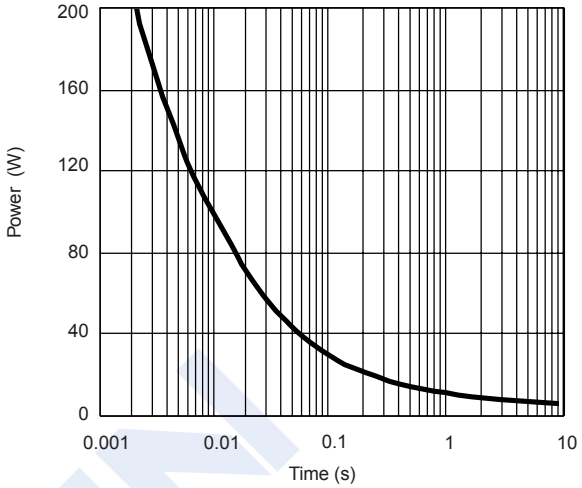
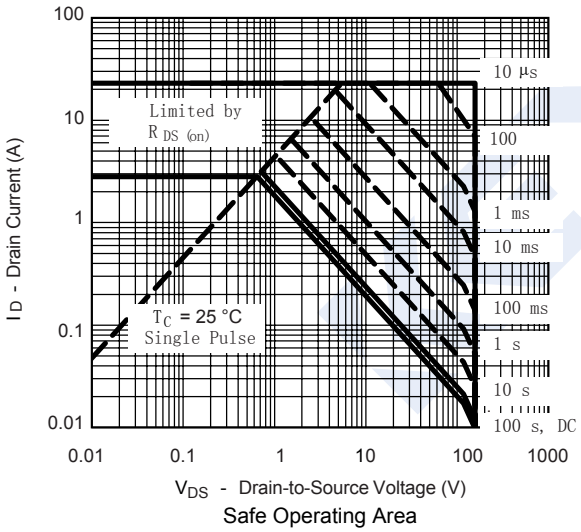
■ Typical Characterisitics



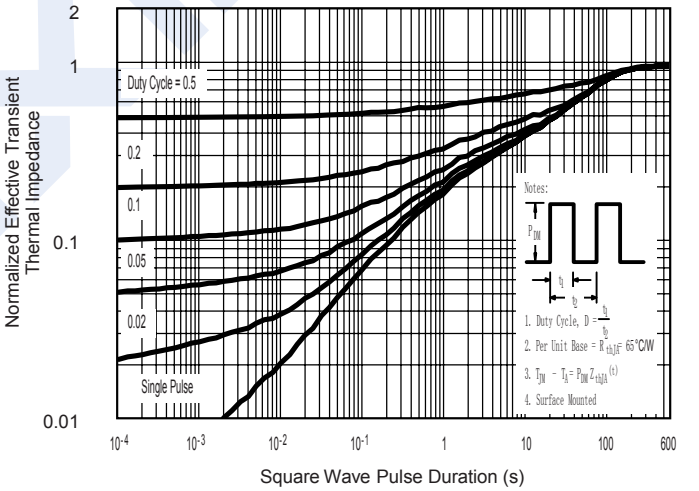
Threshold Voltage



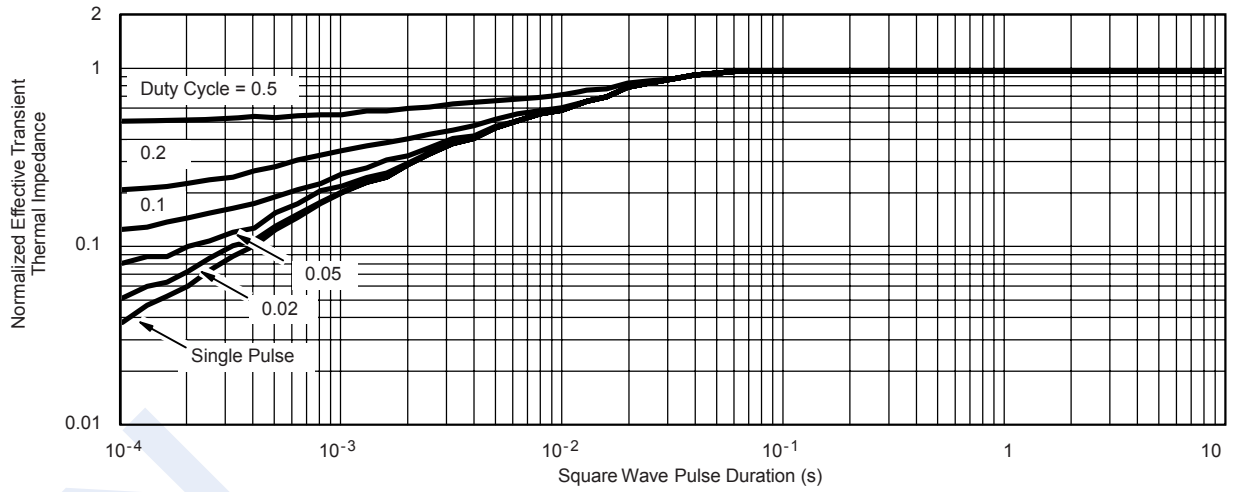
Single Pulse Power, Junction-to-Ambient



Safe Operating Area

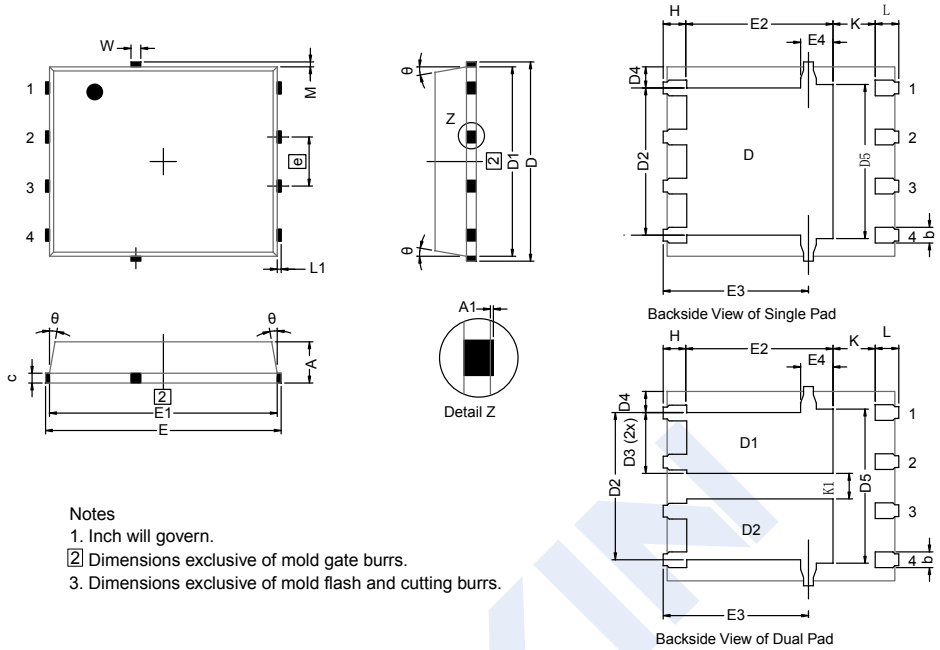


Normalized Thermal Transient Im pedance, Junction-to-Ambient



Normalized Thermal Transient Impedance, Junction-to-Case

PowerPAK ® SO-8(DFN5X6), (Single/Dual)



Notes
1. Inch will govern.
2 Dimensions exclusive of mold gate burrs.
3. Dimensions exclusive of mold flash and cutting burrs.

DIM.	MILLIMETERS			INCHES		
	MIN.	NOM.	MAX.	MIN.	NOM.	MAX.
A	0.97	1.04	1.12	0.038	0.041	0.044
A1		–	0.05	0	–	0.002
b	0.33	0.41	0.51	0.013	0.016	0.020
c	0.23	0.28	0.33	0.009	0.011	0.013
D	5.05	5.15	5.26	0.199	0.203	0.207
D1	4.80	4.90	5.00	0.189	0.193	0.197
D2	3.56	3.76	3.91	0.140	0.148	0.154
D3	1.32	1.50	1.68	0.052	0.059	0.066
D4		0.57 typ.			0.0225 typ.	
D5		3.98 typ.			0.157 typ.	
E	6.05	6.15	6.25	0.238	0.242	0.246
E1	5.79	5.89	5.99	0.228	0.232	0.236
E2 (for AL product)	3.30	3.48	3.66	0.130	0.137	0.144
E2 (for other product)	3.48	3.66	3.84	0.137	0.144	0.151
E3	3.68	3.78	3.91	0.145	0.149	0.154
E4 (for AL product)		0.58 typ.			0.023 typ.	
E4 (for other product)		0.75 typ.			0.030 typ.	
e		1.27 BSC			0.050 BSC	
K (for AL product)		1.45 typ.			0.057 typ.	
K (for other product)		1.27 typ.			0.050 typ.	
K1	0.56	-	-	0.022	-	-
H	0.51	0.61	0.71	0.020	0.024	0.028
L	0.51	0.61	0.71	0.020	0.024	0.028
L1	0.06	0.13	0.20	0.002	0.005	0.008
θ	0°	-	12°	0°	-	12°
W	0.15	0.25	0.36	0.006	0.010	0.014
M		0.125 typ.			0.005 typ.	