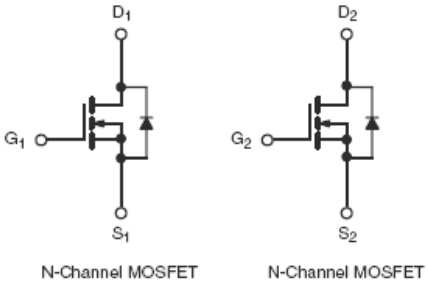
Shenzhen Tuofeng Semiconductor Technology Co., Ltd

Dual N-Channel MOSFET

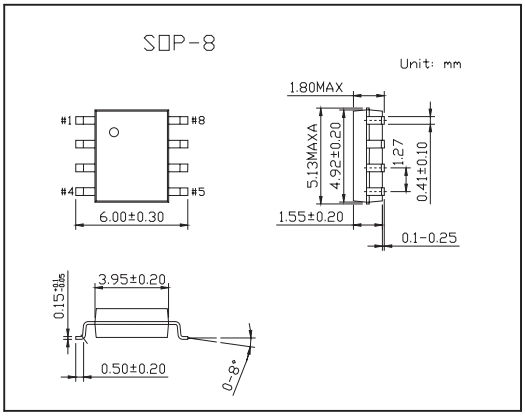
9926B

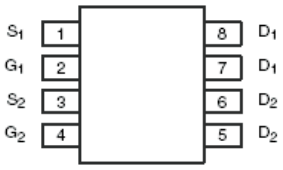
■ Features

- 6.5A, 20 V. $r_{DS(on)}$ = 0.022 Ω @ V_{GS} = 4.5 V
- 5.5A, 20 V $r_{DS(on)}$ = 0.035 Ω @ V_{GS} = 2.5 V.



N-Channel MOSFET N-Channel MOSFET





■ Absolute Maximum Ratings Ta = 25℃

Parameter	Symbol	10 secs	Steady Sate	Unit
Drain-Source Voltage	V_{DS}	20		V
Gate-Source Voltage	V_{GS}	±10		V
Continuous Drain Current Ta=25℃	I_D	6.5		A
Pulsed Drain Current	I_{DM}	30		A
Maximum Power Dissipation T_A = 25℃	P_D	2.0	1.25	W
T_A = 70℃		1.3	0.8	

■ Thermal Resistance Ratings

Parameter		Symbol	Typ	Max	Unit
Maximum Junction-to-Ambient*	t ≤ 10 sec	R_{thJA}	50	62.5	℃/W
	Steady State		80	100	
Maximum Junction-to-Foot (Drain)	Steady State	R_{thJF}	30	40	

* Surface Mounted on 1" X 1"FR4 Board.

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9926B

■ Electrical Characteristics Ta = 25℃

Parameter	Symbol	Testconditons	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	V_{DSS}	V_{GS} = 0 V, I_D = 250 μA	20			V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} =16V , V_{GS} = 0V			1	uA
Gate-Body Leakage	I_{GSS}	V_{DS} = 0V , V_{GS} = ±10V			±100	nA
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS} = V_{GS} , I_D = 250uA	0.5		1.0	V
Drain-Source On-State Resistance *	$r_{DS(on)}$	V_{GS} = 4.5V , I_D = 6.5A		0.020	0.022	Ω
		V_{GS} = 2.5V , I_D = 5.5A		0.033	0.035	
On-State Drain Current *	$I_{D(on)}$	V_{DS} ⩾ 5V , V_{GS} = 4.5V	20			A
Forward Transconductance *	g_{fs}	V_{DS} = 5V , I_D =6.5A	9			V
Total Gate Charge	Q_g	V_{DS} = 15V , V_{GS} = 4.5V , I_D = 6A		13	20	nC
Gate-Source Charge	Q_{gs}			3		
Gate-Drain Charge	Q_{gd}			3.3		
Turn-On Delay Time	$t_{d(on)}$	V_{DD} = 15V I_D = 1A , V_{GS} = 4.5V , R_G = 6Ω ,R_L = 15Ω		2	35	ns
Rise Time	t_r			40	60	
Turn-Off Delay Time	$t_{d(off)}$			50	75	
Fall Time	t_f			20	30	
Maximum Continuous Drain-Source Diode Forward Current	I_S				1	A
Diode Forward Voltage *	V_{SD}	I_S = 1.7A, V_{GS} = 0 V		0.7	1.2	V

* Pulse test; pulse width ⩽ 300 μs, duty cycle ⩽ 2 %.

TYPICAL ELECTRICAL AND THERMAL CHARACTERISTICS

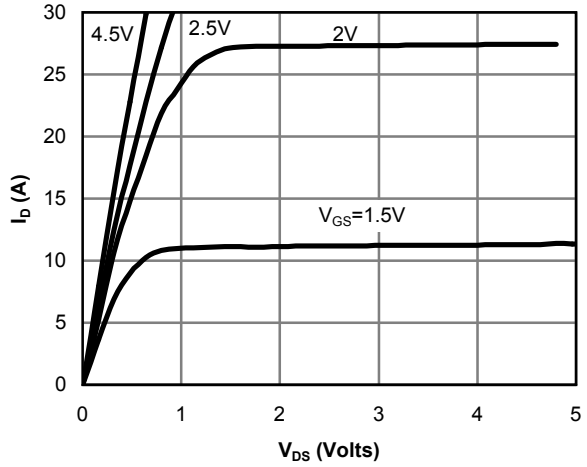

Fig 1: On-Region Characteristics

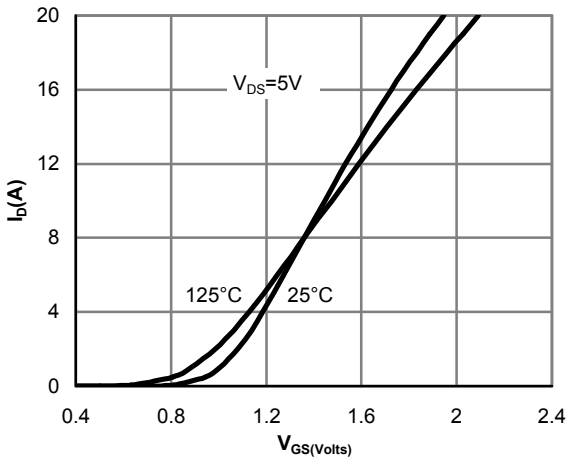

Figure 2: Transfer Characteristics

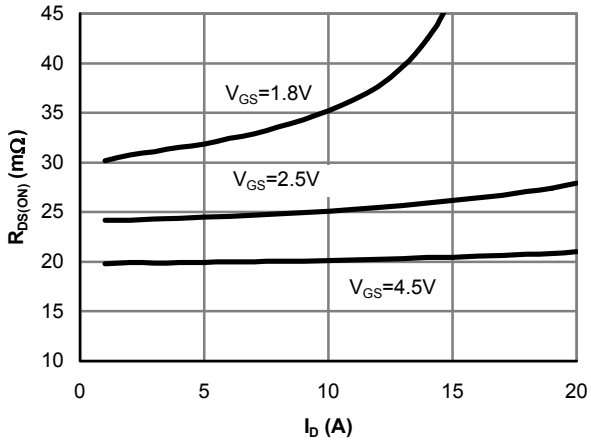

Figure 3: On-Resistance vs. Drain Current and Gate Voltage

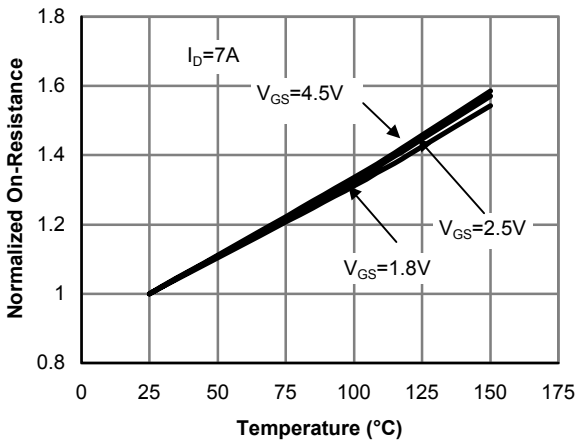

Figure 4: On-Resistance vs. Junction Temperature

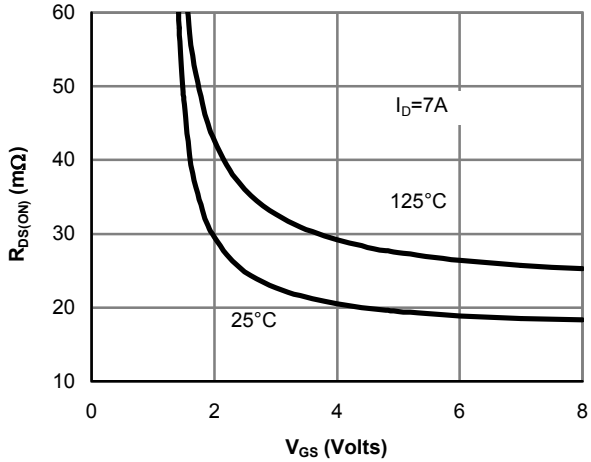

Figure 5: On-Resistance vs. Gate-Source Voltage

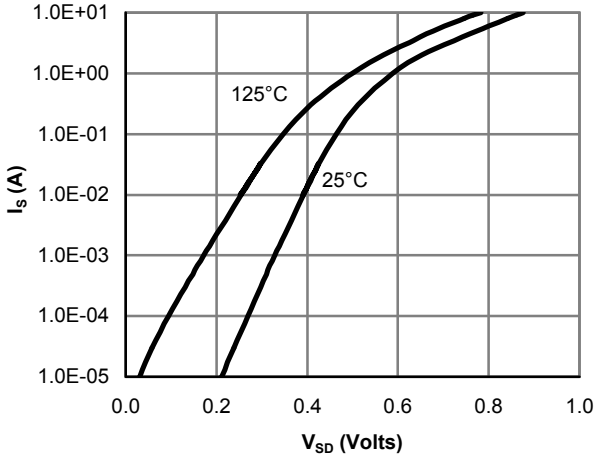

Figure 6: Body-Diode Characteristics

TYPICAL ELECTRICAL AND THERMAL CHARACTERISTICS

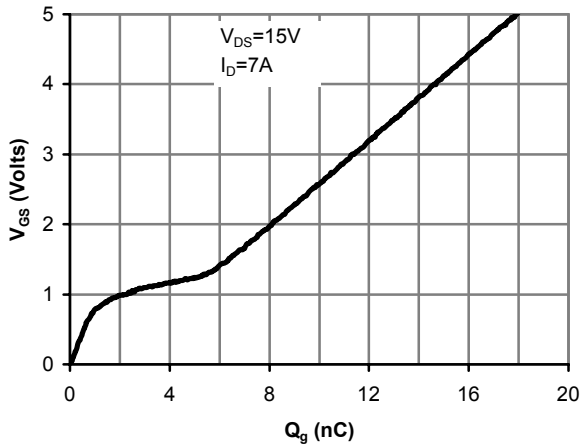

Figure 7: Gate-Charge Characteristics

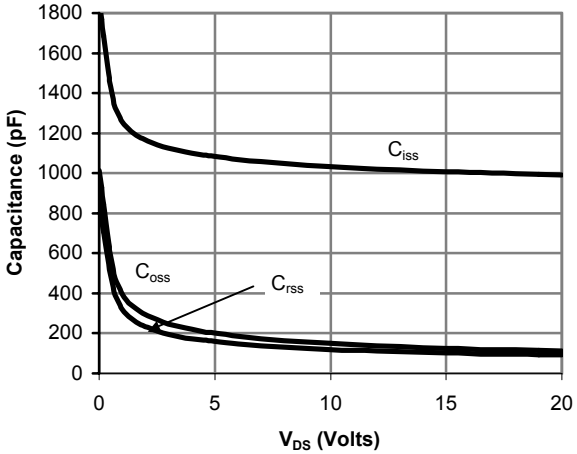

Figure 8: Capacitance Characteristics

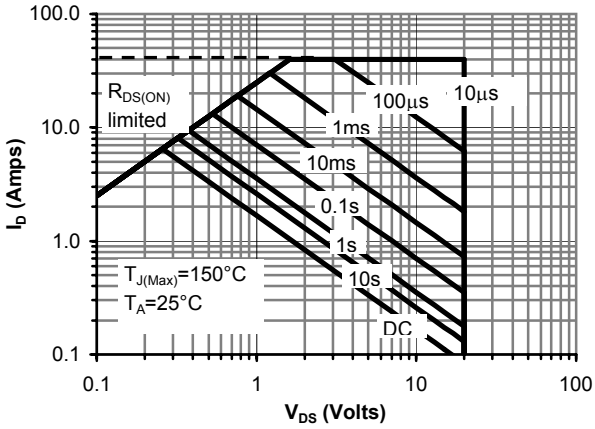

Figure 9: Maximum Forward Biased Safe Operating Area (Note E)

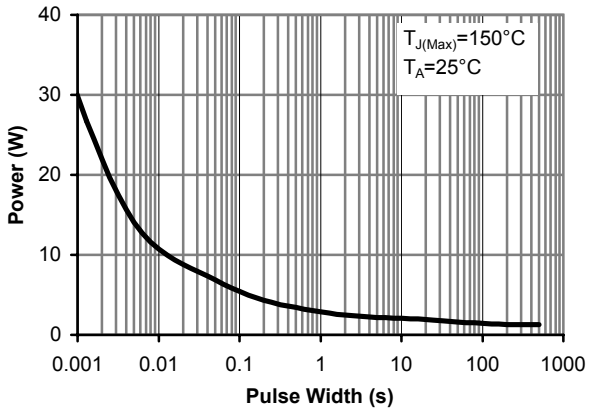

Figure 10: Single Pulse Power Rating Junction-to-Ambient (Note E)

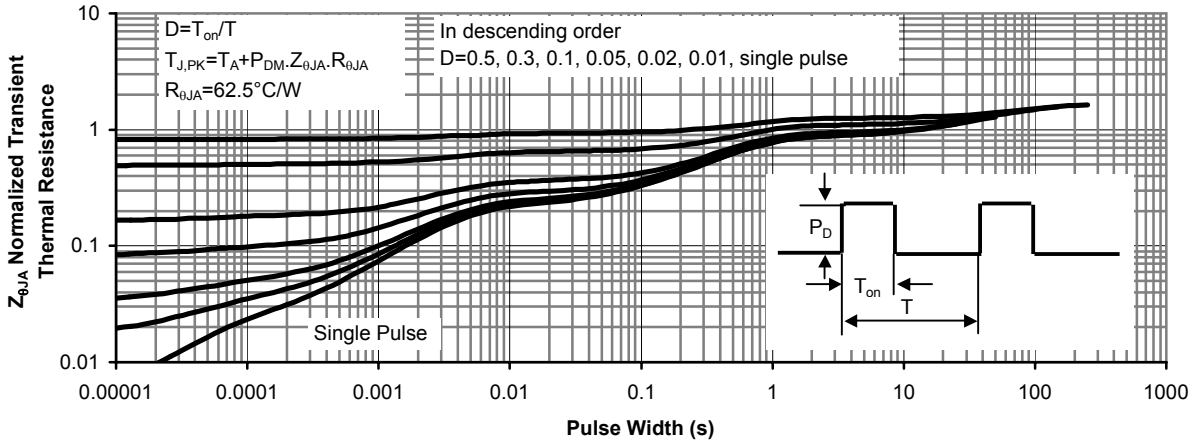

Figure 11: Normalized Maximum Transient Thermal Impedance