

SED5925

Dual P-Channel Enhancement Mode Field Effect Transistor

General Description

The SED5925 uses advanced trench technology to provide excellent $R_{DS(ON)}$ and low gate charge.

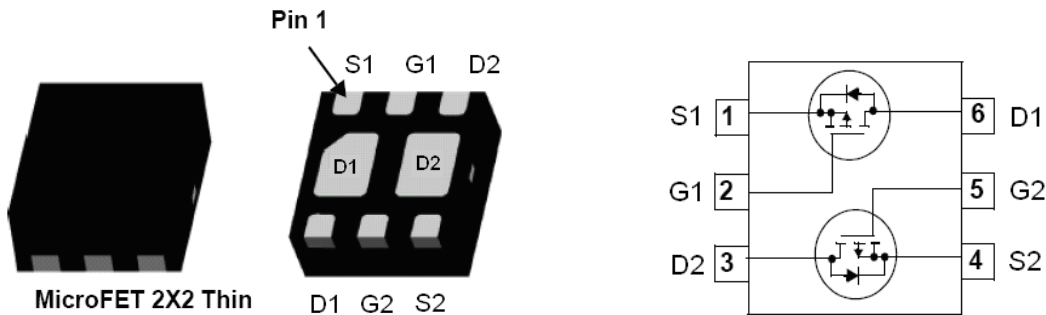
Features

$V_{DS}(V) = -20V$

$R_{DS(ON)} < 100m\Omega$ ($V_{GS} = -4.5V @ I_D = -2.8A$)

$R_{DS(ON)} < 150m\Omega$ ($V_{GS} = -2.5V @ I_D = -2A$)

$R_{DS(ON)} < 170m\Omega$ ($V_{GS} = -1.8V @ I_D = -2A$)



Absolute maximum ratings (Ta=25°C)

Parameter	Symbol	MOSFET1	MOSFET2	Unit	
Drain-Source Voltage	V_{DS}	-20	-20	V	
Gate-Source Voltage	V_{GS}	± 12	± 12	V	
Continuous Drain Current ^A	$T_A = 25^\circ C$	I_D	-2.8	-2.8	A
Pulsed Drain Current ^B					
Power Dissipation	$T_A = 25^\circ C$	P_D	1.25	1.25	W
	$T_A = 70^\circ C$		0.8	0.8	
Junction and Storage Temperature Rang	I_J, I_{STG}	-55 to 150	-55 to 150	$^\circ C$	

Parameter: Thermal Characteristics MOSFET	Symbol	Typ	Max	Units
Maximum Junction-to-Ambient ^A	$t \leq 10s$	$R_{\theta JA}$	140	$^\circ C/W$

Electrical Characteristics (T_J=25°C unless otherwise note)						
Symbol	Parameter	Conditions	Min	Typ	Max	Units
STATIC PARAMETERS						
BV_{DSS}	Drain-Source Breakdown Voltage	I _D = -250uA, V _{GS} =0V	-20			V
I_{DSS}	Zero Gate Voltage Drain Current	V _{DS} = -9.6V, V _{GS} =0V			-1	uA
I_{GSS}	Gate-Body leakage current	V _{DS} =0V, V _{GS} = ±8V			±100	nA
V_{GS(IN)}	Gate Threshold Voltage	V _{DS} = V _{GS} , I _D = -250uA	-0.4		-0.9	V
R_{DS(ON)}	Static Drain-Source On-Resistance	V _{GS} =-4.5V, I _D = -2.8A		70	100	mΩ
		V _{GS} = -2.5V, I _D = -2.0A		85	150	mΩ
		V _{GS} = -1.8V, I _D = -2.0A		110	170	mΩ
g_{FS}	Forward Transconductance	V _{GS} = -5V, I _D = -2.8A		6.5		S
DYNAMIC PARAMETERS						
C_{ISS}	Input Capacitance	V _{GS} = 0V, V _{DS} = -6V, f= 1MHz		415		pF
C_{OSS}	Output Capacitance			223		pF
C_{RSS}	Reverse Transfer Capacitance			87		pF
SWITCHING PARAMETERS						
Q_g	Total Gate Charge	V _{GS} =-4.5V, V _{DS} =-6V, I _D = -2.8A		5.8	7.54	nC
Q_{gs}	Gate Source Charge			0.85	1.11	nC
Q_{gd}	Gate Drain Charge			1.7	2.21	nC
T_{D(on)}	Turn-On DelayTime	V _{GS} = -4.5V, V _{DS} = -6V, R _L =6Ω, R _{GEN} =6Ω		13	26	ns
t_r	Turn-On Rise Time			36	72	ns
T_{D(off)}	Turn-Off DelayTime			42	84	ns
t_f	Turn-Off Fall Time			34	68	ns
I_s	Max. Diode Forward Current				-1.6	A
V_{SD}	Diode Forward Voltage	V _{GS} = 0V, I _S =-1.6A			-1.2	V

TYPICAL ELECTRICAL AND THERMAL CHARACTERISTICS

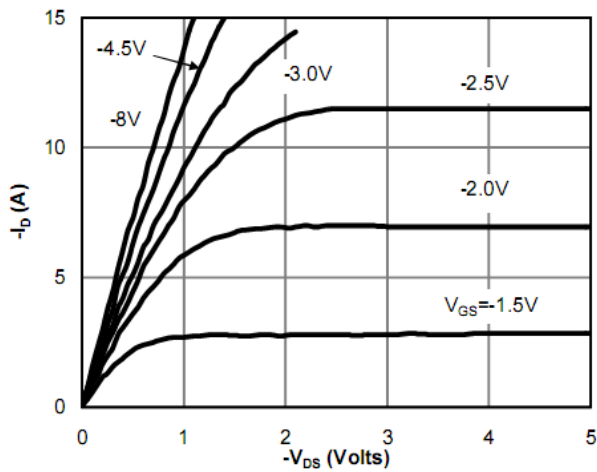


Fig 1: On-Region Characteristics

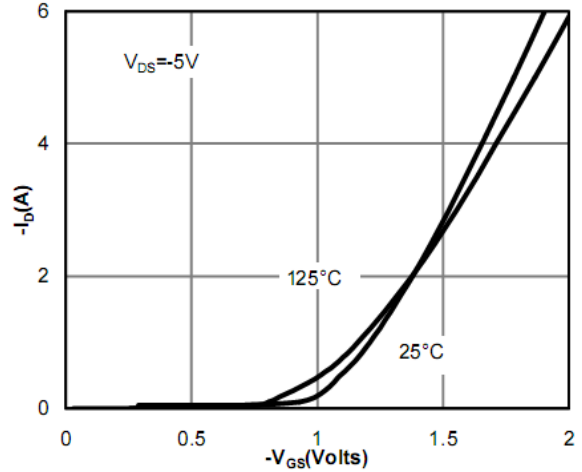


Figure 2: Transfer Characteristics

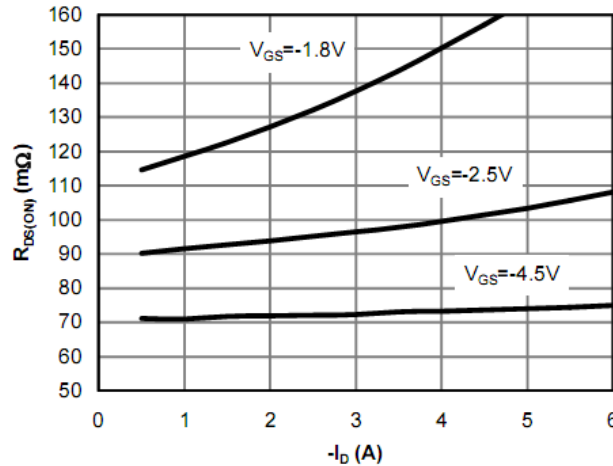


Figure 3: On-Resistance vs. Drain Current and Gate Voltage

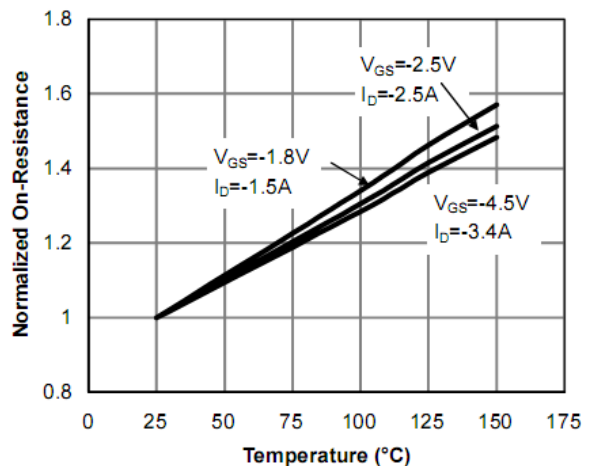


Figure 4: On-Resistance vs. Junction Temperature

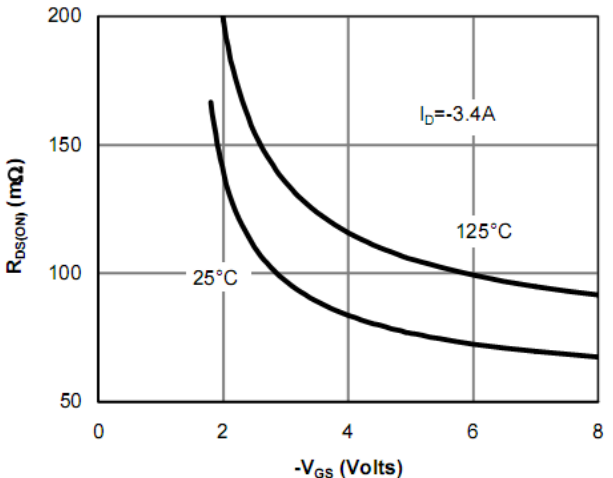


Figure 5: On-Resistance vs. Gate-Source Voltage

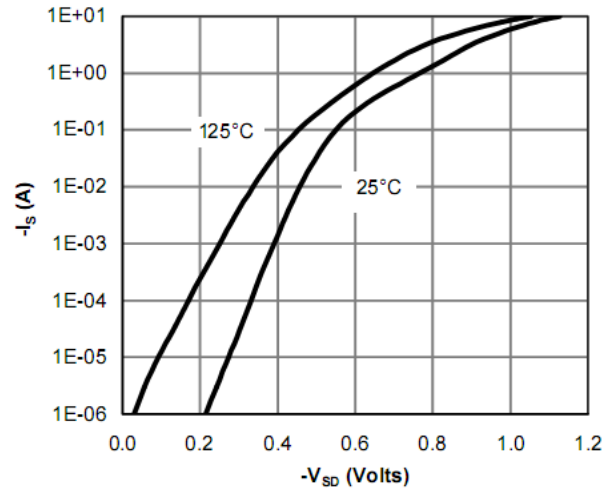


Figure 6: Body-Diode Characteristics

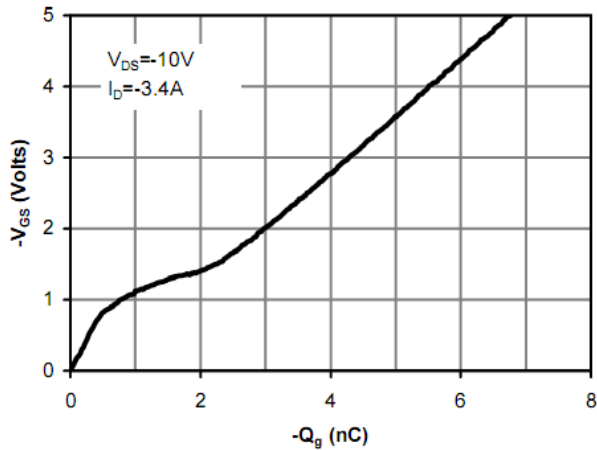


Figure 7: Gate-Charge Characteristics

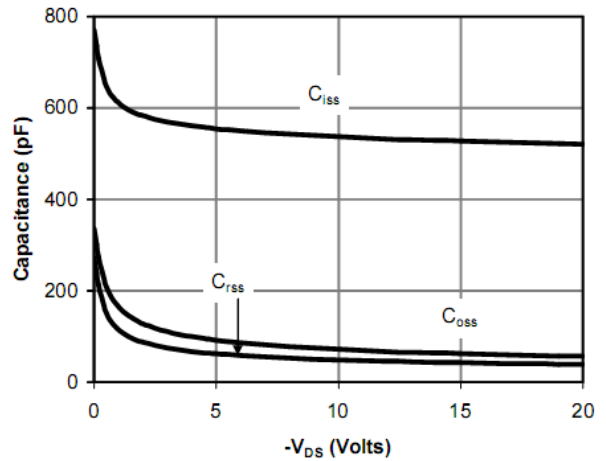


Figure 8: Capacitance Characteristics

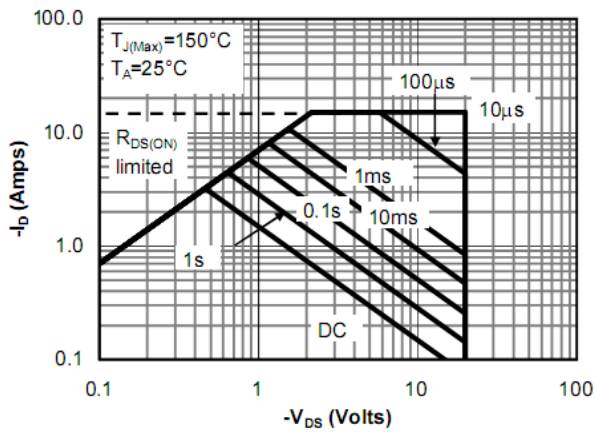


Figure 9: Maximum Forward Biased Safe Operating Area (Note E)

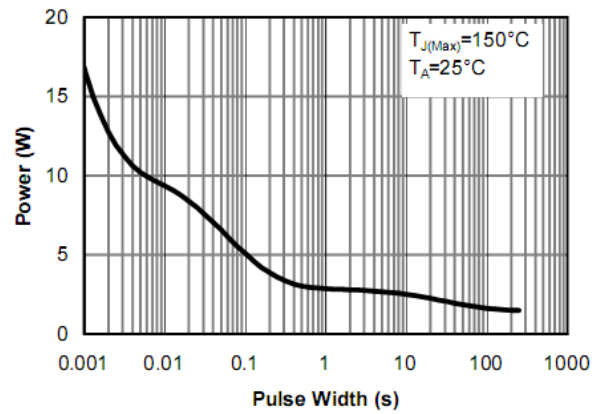


Figure 10: Single Pulse Power Rating Junction-to-Ambient (Note E)

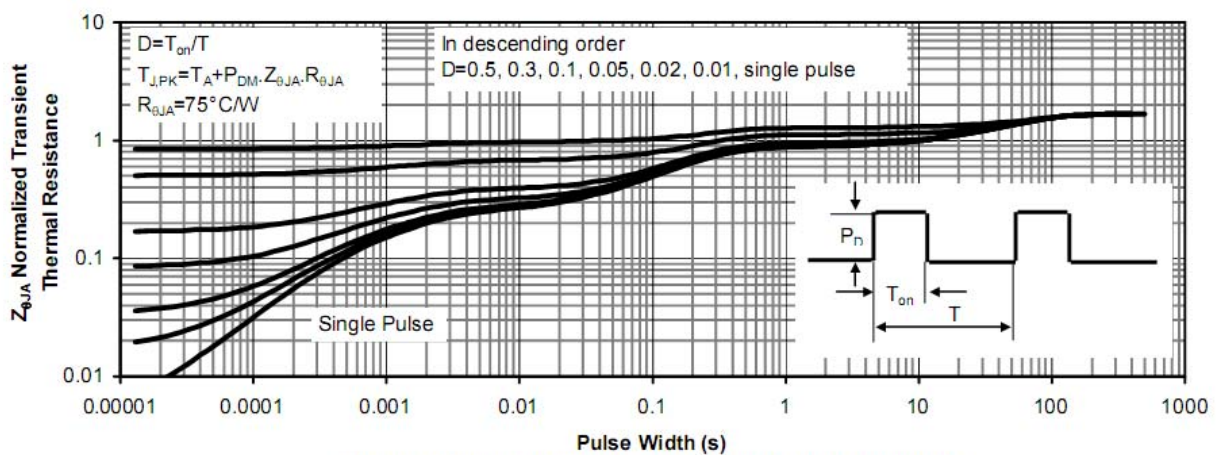


Figure 11: Normalized Maximum Transient Thermal Impedance

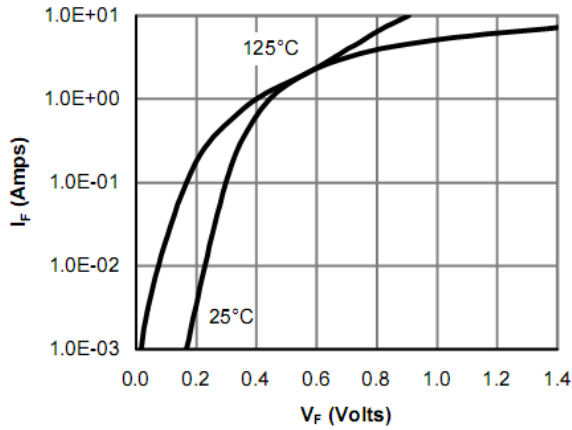


Figure 12: Schottky Forward Characteristics

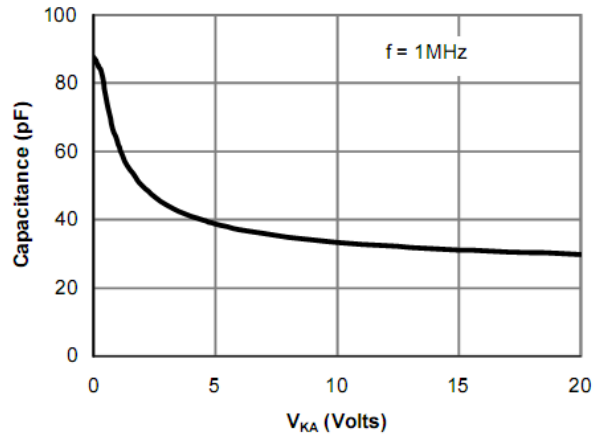


Figure 13: Schottky Capacitance Characteristics

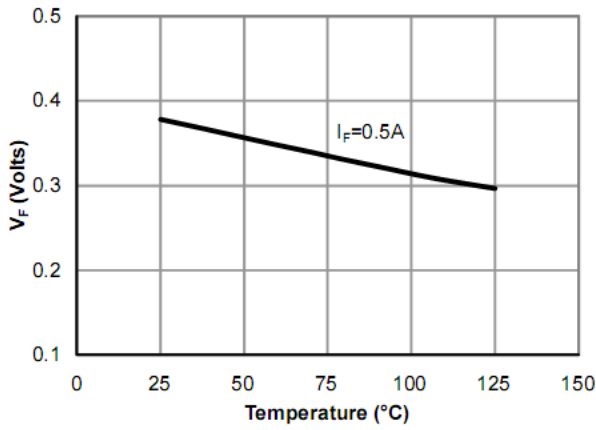


Figure 14: Schottky Forward Drop vs. Junction Temperature

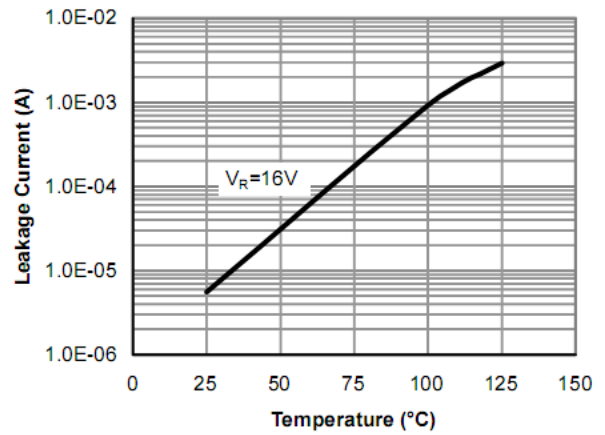


Figure 15: Schottky Leakage current vs. Junction Temperature

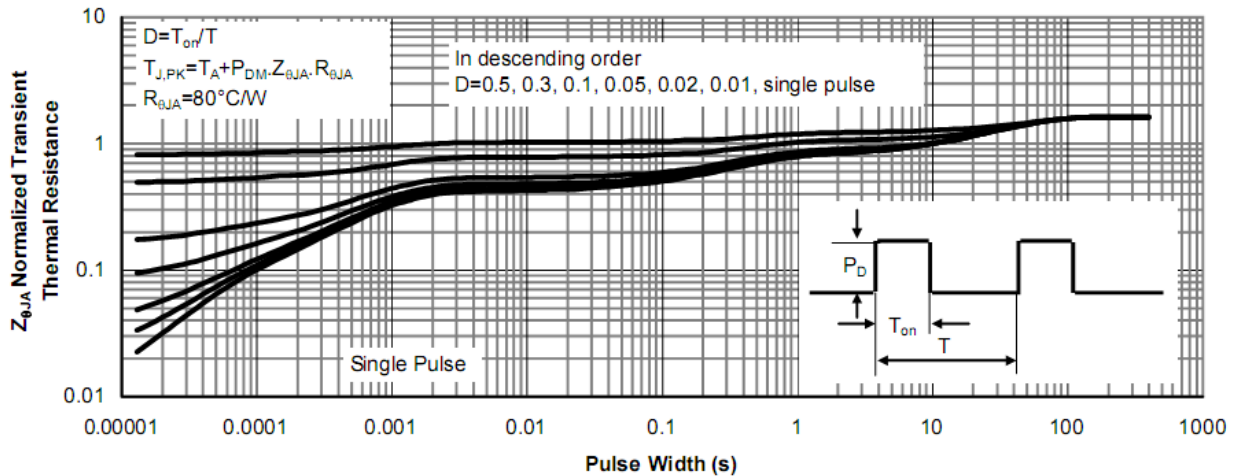
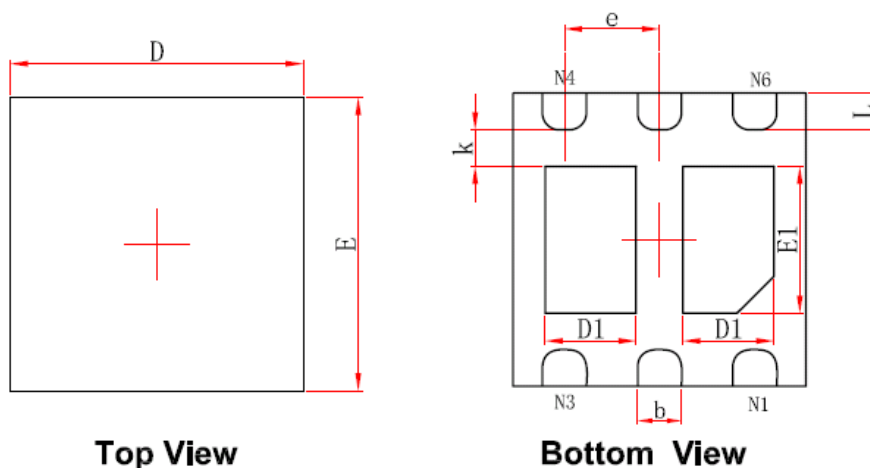


Figure 16: Schottky Normalized Maximum Transient Thermal Impedance

DFNWB2×2-6L-A (P0. 65T0. 75/0. 85) PACKAGE OUTLINE DIMENSIONS



Top View

Bottom View

Side View

Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.700/0.800	0.800/0.900	0.028/0.031	0.031/0.035
A1	0.000	0.050	0.000	0.002
A3	0.203REF.		0.008REF.	
D	1.924	2.076	0.076	0.082
E	1.924	2.076	0.076	0.082
D1	0.520	0.720	0.020	0.028
E1	0.900	1.100	0.035	0.043
k	0.200MIN.		0.008MIN.	
b	0.250	0.350	0.010	0.014
e	0.650TYP.		0.026TYP.	
L	0.174	0.326	0.007	0.013

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