

SED8840

Dual N-Channel Enhancement-Mode MOSFET

Revision: A

General Description

Thigh Density Cell Design For Ultra Low On-Resistance Fully Characterized Avalanche Voltage and Current Improved Shoot-Through FOM

- Simple Drive Requirement
- Small Package Outline
- Surface Mount Device

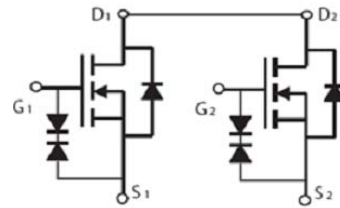
Features

For a single MOSFET

- $V_{DS} = 20V$
- $R_{DS(ON)} = 8.5m\Omega @ V_{GS}=4.5V$

Pin configurations

See Diagram below



Absolute Maximum Ratings

Parameter		Symbol	Rating	Units
Drain-Source Voltage		V_{DS}	20	V
Gate-Source Voltage		V_{GS}	± 12	V
Drain Current	Continuous	I_D	10	A
	Pulsed		85	
Total Power Dissipation	@TA=25°C	P_D	1.7	W
Operating Junction Temperature Range		T_J	-55 to 150	°C

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Electrical Characteristics (T _J =25°C unless otherwise noted)							
Symbol	Parameter	Test Conditions	Min	Typ	Max	Units	
OFF CHARACTERISTICS (Note 2)							
B _V DSS	Drain-Source Breakdown Voltage	I _D =250μA, V _{GS} =0 V	20			V	
I _{DSS}	Drain to Source Leakage Current	V _{DS} = 16V, V _{GS} =0V			1	μA	
I _{GSS}	Gate-Body Leakage Current	V _{GS} =10V			10	μA	
V _{GS(th)}	Gate Threshold Voltage	V _{DS} = V _{GS} , I _D =250μA	0.3	0.65	1	V	
R _{DS(ON)}	Static Drain-Source On-Resistance	V _{GS} =4.5V, I _D =10A		8.5	9.5	mΩ	
DYNAMIC PARAMETERS							
C _{iss}	Input Capacitance	V _{GS} =0V, V _{DS} =10V, f=1MHz	1000	1255	1510	pF	
C _{oss}	Output Capacitance		150	220	290	pF	
C _{rss}	Reverse Transfer Capacitance		100	168	235	pF	
SWITCHING PARAMETERS							
Q _g	Total Gate Charge	V _{GS} =4.5V, V _{DS} =10V, I _D =10A	10	12.5	15	nC	
Q _{gs}	Gate Source Charge				5.5		nC
Q _{gd}	Gate Drain Charge				6.5		nC
t _{d(on)}	Turn-On Delay Time	V _{GEN} =4.5V, V _{DD} =10V, R _{GEN} =3Ω		1.1		ns	
t _{d(off)}	Turn-Off Delay Time			7		ns	
t _{d(r)}	Turn-On Rise Time			2.6		ns	
t _{d(f)}	Turn-Off Fall Time			7.4		ns	
Thermal Resistance							
Symbol	Parameter		Typ	Max	Units		
R _{θJC}	Thermal Resistance Junction to Case(t≤10s)		30	40	°C/W		

Typical Characteristics

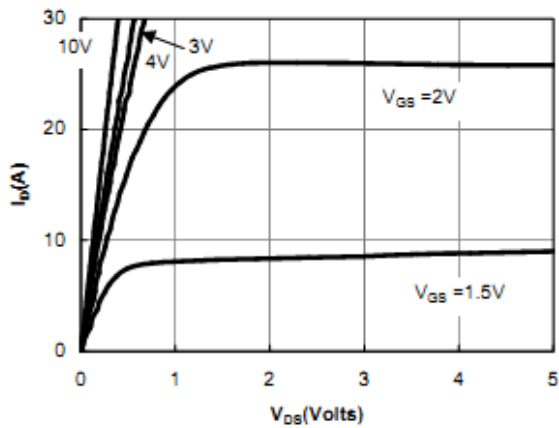


Figure 1: On-Regions Characteristics

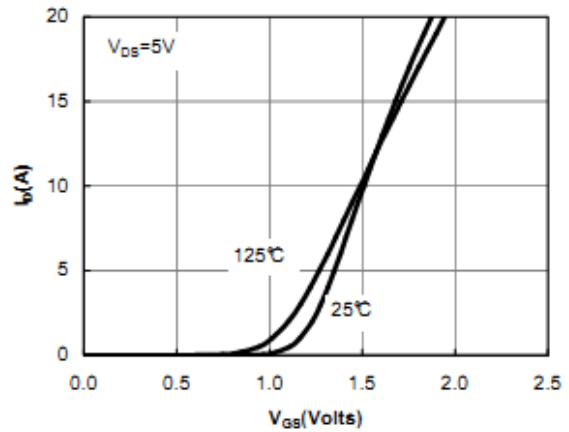


Figure 2: Transfer Characteristics

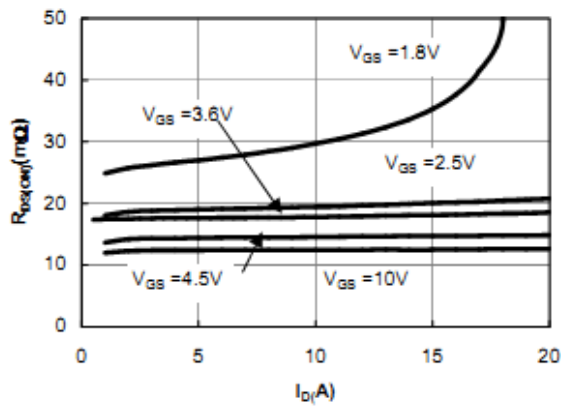


Figure 3: On-Resistance vs. Drain Current and Gate Voltage

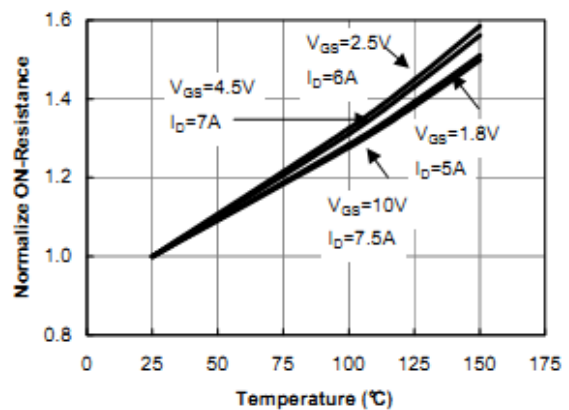


Figure 4: On-Resistance vs. Junction Temperature

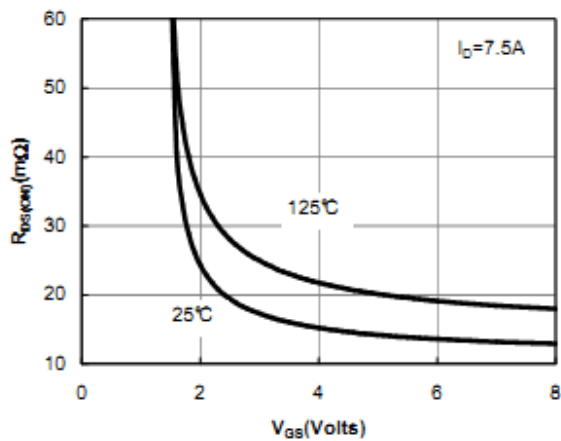


Figure 5: On-Resistance vs. Gate-Source Voltage

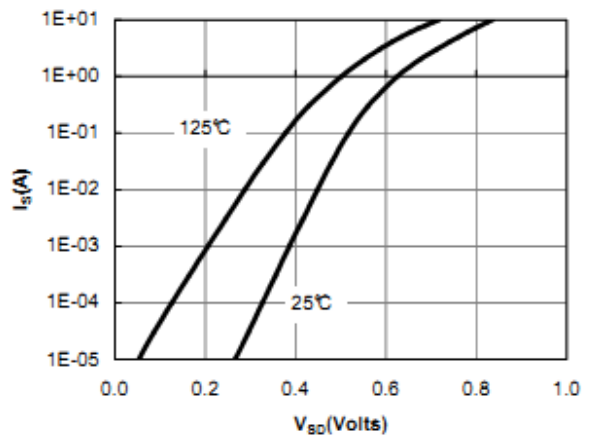


Figure 6: Body-Diode Characteristics

Typical Characteristics

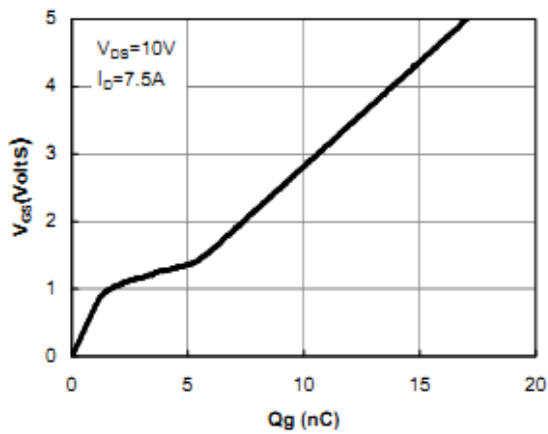


Figure 7: Gate-Charge Characteristics

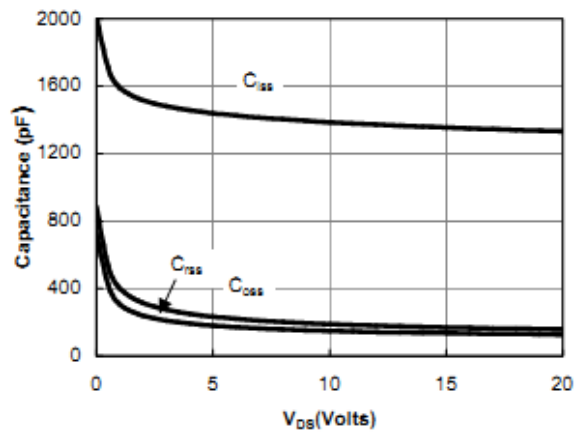


Figure 8: Capacitance Characteristics

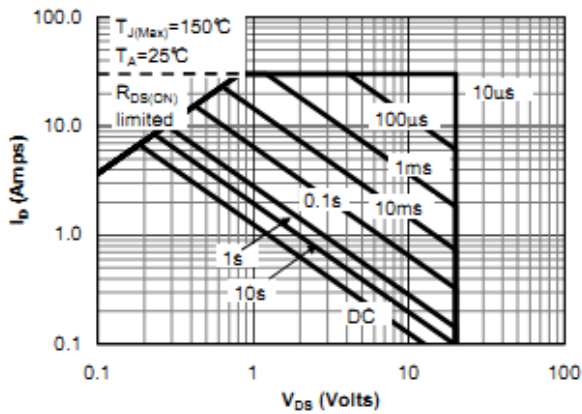


Figure 9: Maximum Forward Biased Safe Operating Area (Note E)

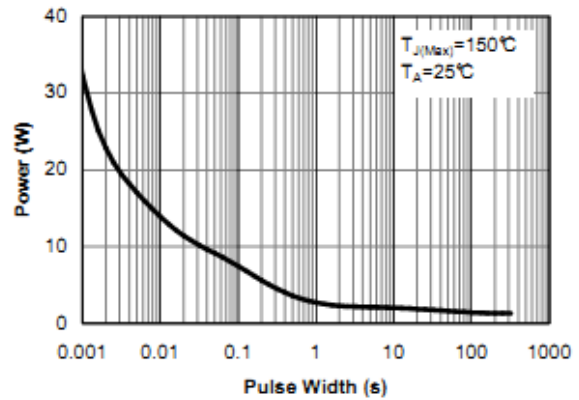


Figure 10: Single Pulse Power Rating Junction-to-Ambient (Note E)

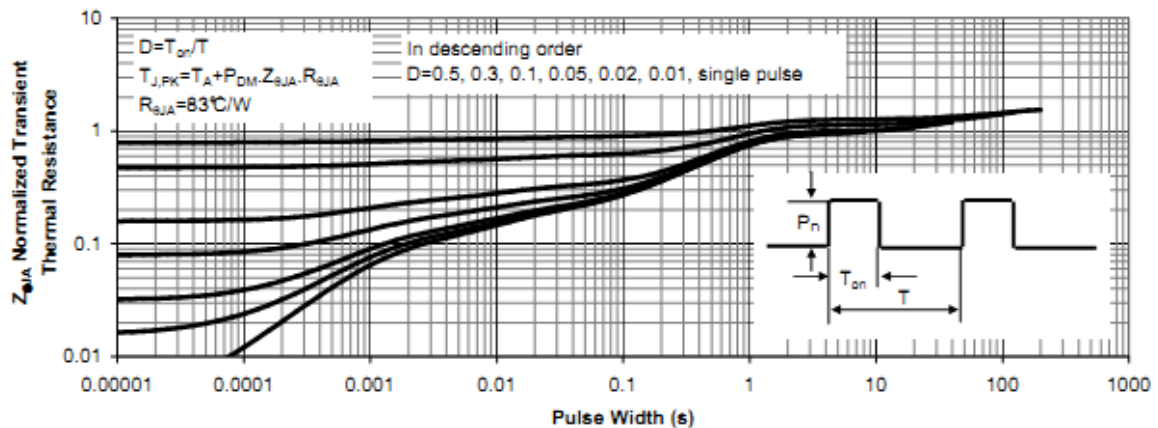


Figure 11: Normalized Maximum Transient Thermal Impedance

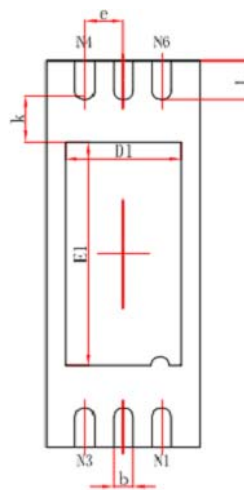
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Package Outline Dimension

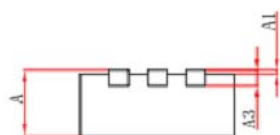
DFN5X2



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	4.924	5.076	0.194	0.200
D1	1.400	1.600	0.055	0.063
E1	2.800	3.000	0.110	0.118
k	0.200MIN.		0.008MIN.	
b	0.200	0.300	0.008	0.012
e	0.500TYP.		0.020TYP.	
L	0.374	0.526	0.015	0.021

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