

SE80280G

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

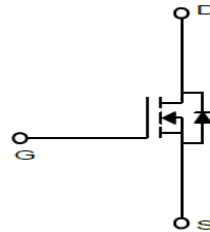
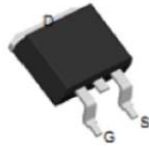
Features

For a single MOSFET

- $V_{DS} = 80V$
- $R_{DS(ON)} = 1.7m\Omega @ V_{GS}=10V$

Pin configurations

See Diagram below



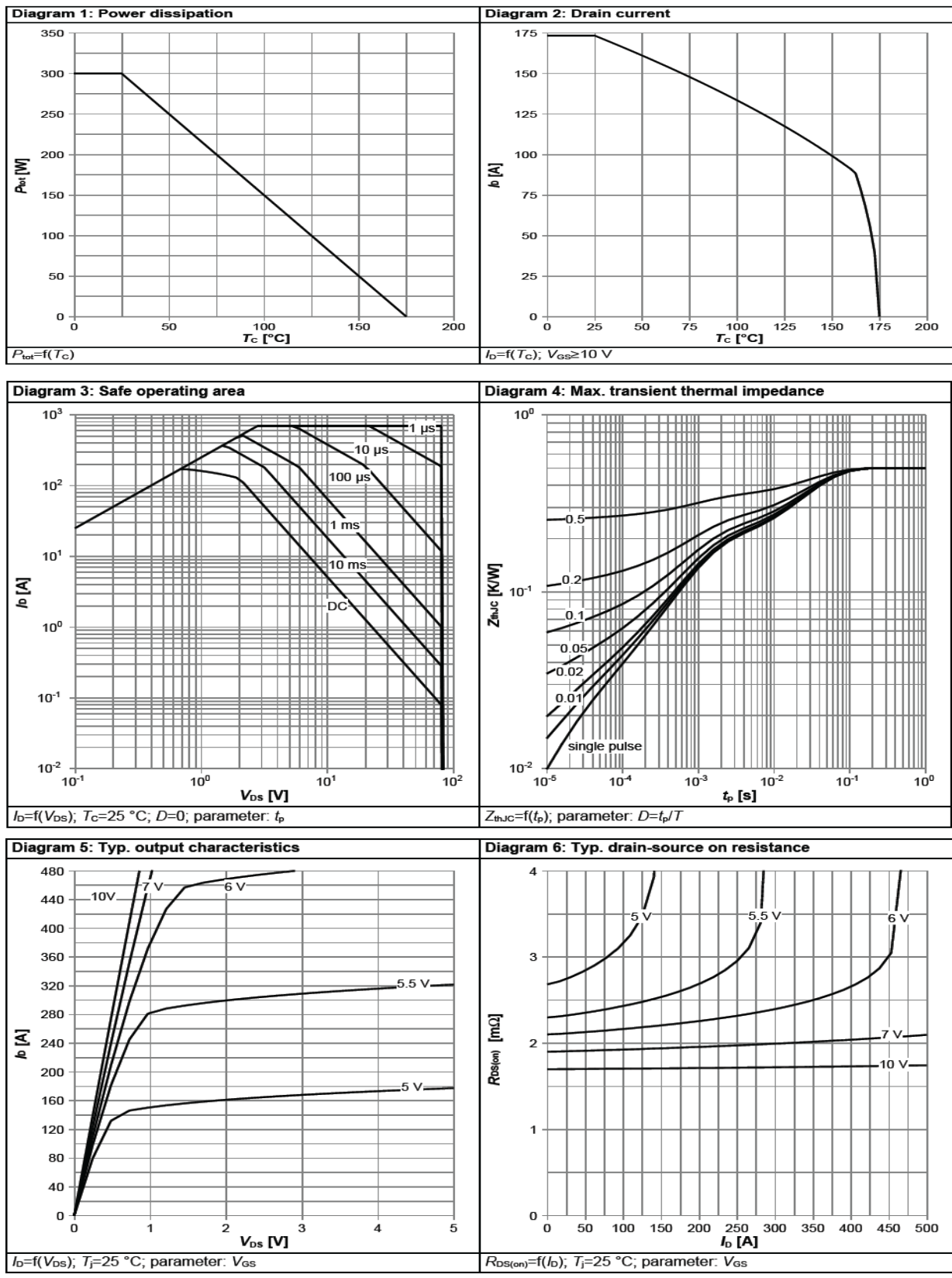
Absolute Maximum Ratings

Parameter		Symbol	Rating	Units
Drain-Source Voltage		V_{DS}	80	V
Gate-Source Voltage		V_{GS}	± 20	V
Drain Current	Continuous	I_D	173	A
	Pulsed		692	
Single Pulse Avalanche Energy		E_{AS}	674	mJ
Total Power Dissipation	@TC=25°C	P_D	300	W
Operating Junction Temperature Range		T_J	-55 to 150	°C

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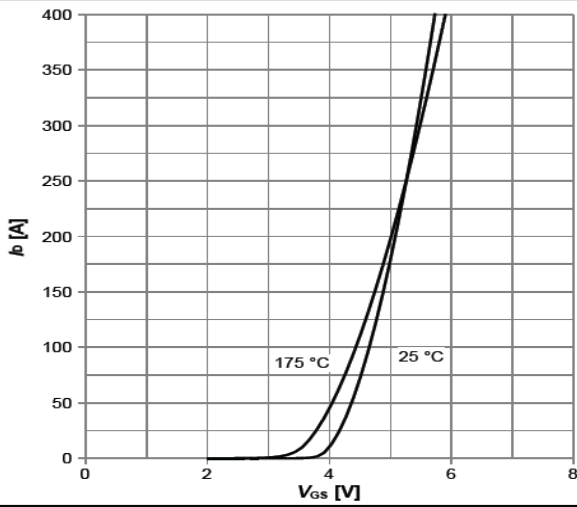
Electrical Characteristics (T _J =25°C unless otherwise noted)						
Symbol	Parameter	Test Conditions	Min	Typ	Max	Units
OFF CHARACTERISTICS (Note 2)						
B _V DSS	Drain-Source Breakdown Voltage	I _D =250μA, V _{GS} =0 V	80			V
I _{DSS}	Drain to Source Leakage Current	V _{DS} =100V, V _{GS} =0V			1	μA
I _{GSS}	Gate-Body Leakage Current	V _{GS} =20V			100	nA
V _{GS(th)}	Gate Threshold Voltage	V _{DS} = V _{GS} , I _D =250μA	2.2	3.0	3.8	V
R _{DS(ON)}	Static Drain-Source On-Resistance	V _{GS} =10V, I _D =100A	-	1.7	2.0	mΩ
		V _{GS} =6V, I _D =50A		2.2	2.8	mΩ
g _{FS}	Forward Transconductance	V _{DS} =10V, I _D =100A	100	200		S
DYNAMIC PARAMETERS						
C _{iss}	Input Capacitance	V _{GS} =0V, V _{DS} =40V, f=1MHz		9300	12100	pF
C _{oss}	Output Capacitance			1500	1950	pF
C _{rss}	Reverse Transfer Capacitance			65	11	pF
SWITCHING PARAMETERS						
Q _g	Total Gate Charge ²	V _{GS} =10V, V _{DS} =40V, I _D =100A		43		nC
Q _{gs}	Gate Source Charge			28	42	nC
Q _{gd}	Gate Drain Charge			45		nC
t _{d(on)}	Turn-On Delay Time	V _{GS} =10V, V _{DS} =40V, R _{GEN} =1.6Ω I _D =100A		28		ns
t _{d(off)}	Turn-Off Delay Time			62		ns
t _{d(r)}	Turn-On Rise Time			16		ns
t _{d(f)}	Turn-Off Fall Time			20		ns
Thermal Resistance						
Symbol	Parameter		Typ	Max	Units	
R _{θJC}	Thermal Resistance Junction to Case(t≤10s)		-	0.4	°C/W	

Typical Characteristics



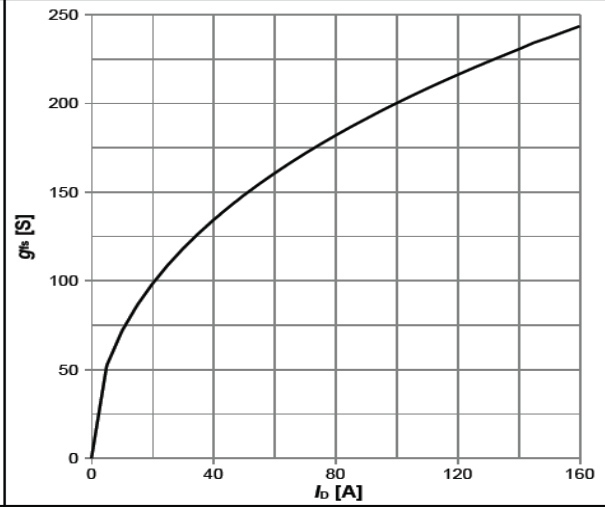
Typical Characteristics

Diagram 7: Typ. transfer characteristics



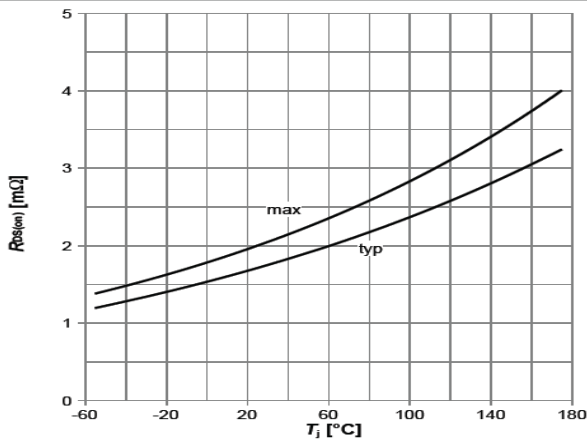
$I_D = f(V_{GS}); |V_{DS}| > 2|I_D|R_{DS(on)max}; \text{parameter: } T_j$

Diagram 8: Typ. forward transconductance



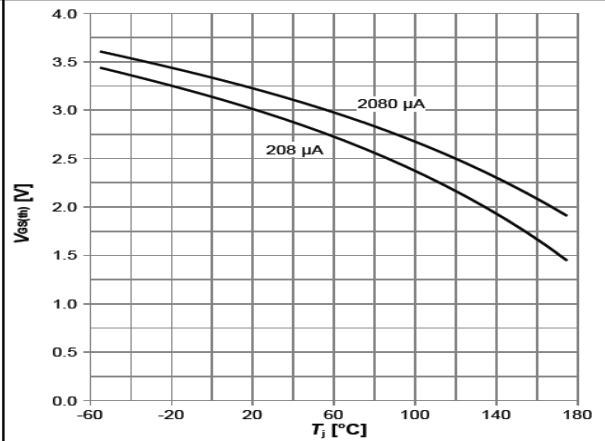
$g_{fs} = f(I_D); T_j = 25\text{ °C}$

Diagram 9: Drain-source on-state resistance



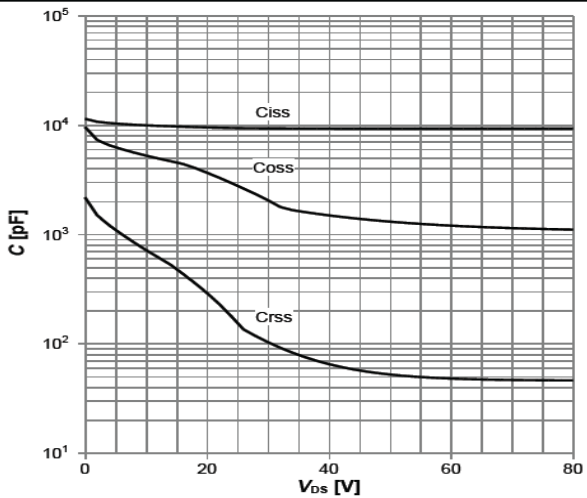
$R_{DS(on)} = f(T_j); I_D = 100\text{ A}; V_{GS} = 10\text{ V}$

Diagram 10: Typ. gate threshold voltage



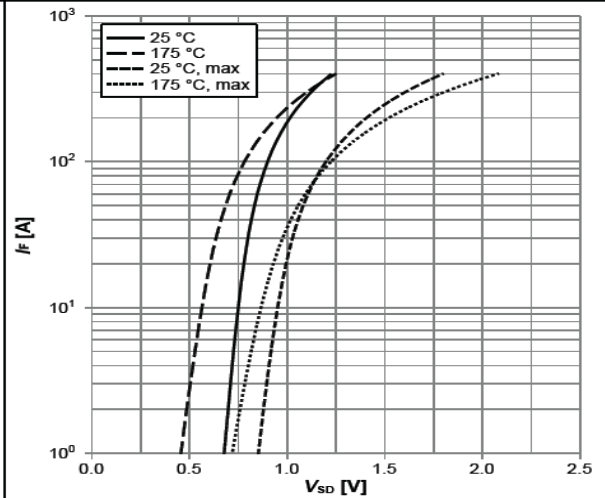
$V_{GS(th)} = f(T_j); V_{GS} = V_{DS}; \text{parameter: } I_D$

Diagram 11: Typ. capacitances



$C = f(V_{DS}); V_{GS} = 0\text{ V}; f = 1\text{ MHz}$

Diagram 12: Forward characteristics of reverse diode

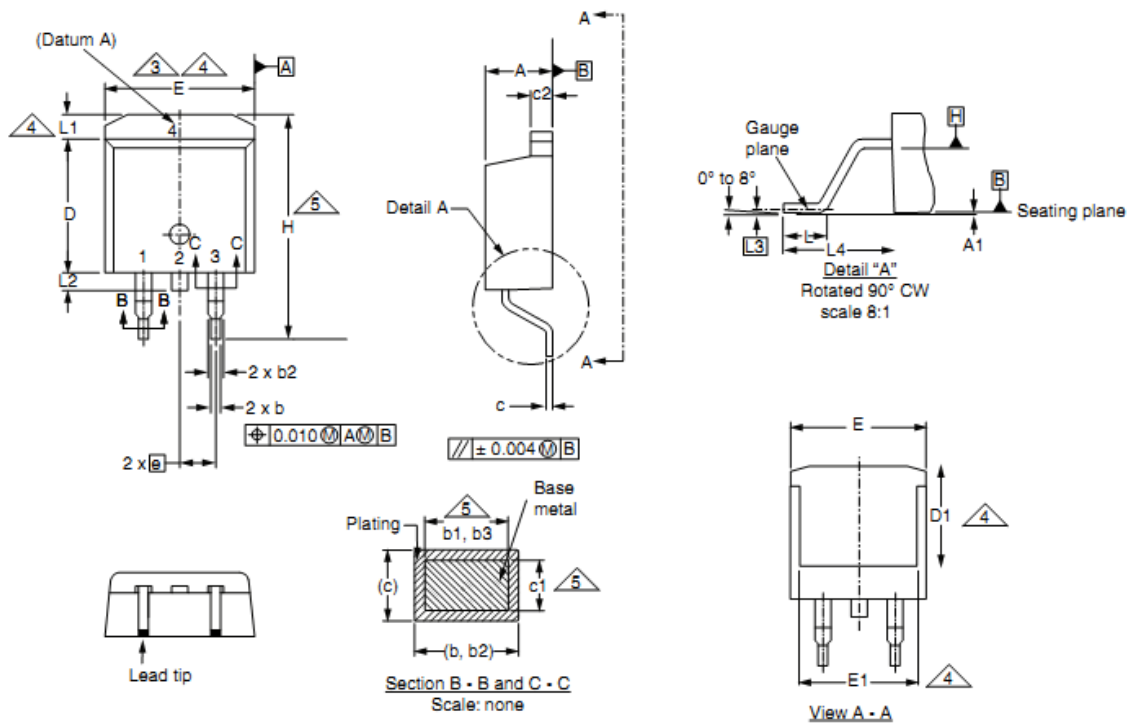


$I_F = f(V_{SD}); \text{parameter: } T_j$

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Package Outline Dimension

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DIM.	MILLIMETERS		INCHES	
	MIN.	MAX.	MIN.	MAX.
A	4.06	4.83	0.160	0.190
A1	0.00	0.25	0.000	0.010
b	0.51	0.99	0.020	0.039
b1	0.51	0.89	0.020	0.035
b2	1.14	1.78	0.045	0.070
b3	1.14	1.73	0.045	0.068
c	0.38	0.74	0.015	0.029
c1	0.38	0.58	0.015	0.023
c2	1.14	1.65	0.045	0.065
D	8.38	9.65	0.330	0.380

DIM.	MILLIMETERS		INCHES	
	MIN.	MAX.	MIN.	MAX.
D1	6.86	-	0.270	-
E	9.65	10.67	0.380	0.420
E1	6.22	-	0.245	-
e	2.54 BSC		0.100 BSC	
H	14.61	15.88	0.575	0.625
L	1.78	2.79	0.070	0.110
L1	-	1.65	-	0.066
L2	-	1.78	-	0.070
L3	0.25 BSC		0.010 BSC	
L4	4.78	5.28	0.188	0.208

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