

SED3080M

N-Channel Enhancement-Mode MOSFET

Revision: A

General Description

This type used advanced trench technology and design to provide excellent RDS(ON) with low gate charge. It can be used in a wide variety of application

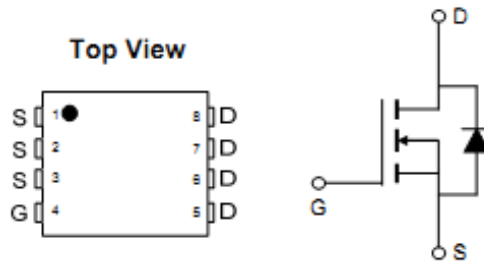
Features

For a single MOSFET

- $V_{DS} = 30V$
- $R_{DS(ON)} = 4.5m\Omega @ V_{GS}=10V$

Pin configurations

See Diagram below



Absolute Maximum Ratings

Parameter		Symbol	Rating	Units
Drain-Source Voltage		V_{DS}	30	V
Gate-Source Voltage		V_{GS}	± 20	V
Drain Current	Continuous	I_D	80	A
	Pulsed		170	
Total Power Dissipation	@TA=25°C	P_D	83	W
Single pulse avalanche energy		E_{AS}	306	mJ
Operating Junction Temperature Range		T_J	-55 to 175	°C

Thermal Resistance

Symbol	Parameter	Typ	Max	Units
$R_{\theta JC}$	Thermal Resistance Junction to Case	-	3	°C/W

SED3080M

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	30			V
I _{DSS}	Drain to Source Leakage Current	V _{DS} =30V, V _{GS} =0V			1000	nA
I _{GSS}	Gate-Body Leakage Current	V _{GS} =20V			100	nA
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _D =250μA	1		3	V
R _{DS(on)}	Static Drain-Source On-Resistance	V _{GS} =10V, I _D =25A	-	4.5	6.5	mΩ
		V _{GS} =4.5V, I _D =20A	-	5.8	10	mΩ
g _{FS}	Forward Transconductance	V _{DS} =60V, I _D =7.5A	3	5		S
DYNAMIC PARAMETERS						
C _{iss}	Input Capacitance	V _{GS} =0V, V _{DS} =15V, f=1MHz		2330		pF
C _{oss}	Output Capacitance			460		pF
C _{rss}	Reverse Transfer Capacitance			230		pF
SWITCHING PARAMETERS						
Q _g	Total Gate Charge ²	V _{GS} =10V, V _{DS} =30V, I _D =30A		51		nC
Q _{gs}	Gate Source Charge			14		nC
Q _{gd}	Gate Drain Charge			11		nC
t _{d(on)}	Turn-On Delay Time	V _{GS} =10V, V _{DS} =10V, R _{GEN} =2.7Ω I _D =30A		20		ns
t _{d(off)}	Turn-Off Delay Time			60		ns
t _{d(r)}	Turn-On Rise Time			15		ns
t _{d(f)}	Turn-Off Fall Time			10		ns
Source-Drain Diode Characteristics						
V _{SD}	Diode Forward Voltage	V _{GS} =0V, I _S =24A			1.2	V
I _S	Diode Forward Current				80	A
t _{rr}	Reverse Recovery Time	T _J =25°C, I _F =80A Di/dt=100A/μs		32	50	nS
Q _{rr}	Reverse Recovery Charge			12	20	nC
t _{on}	Forward Turn-On Time	Intrinsic turn-on time is negligible(turn-on is dominated by LS)				

Typical Characteristics

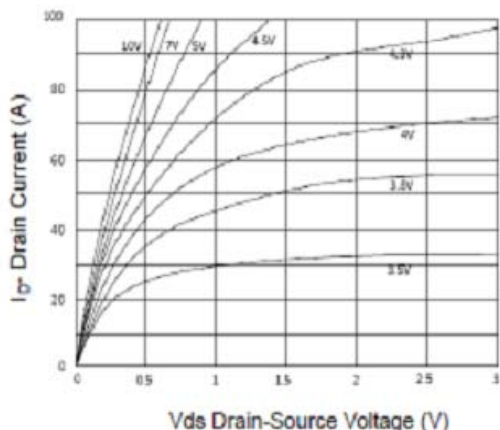


Figure 1 Output Characteristics

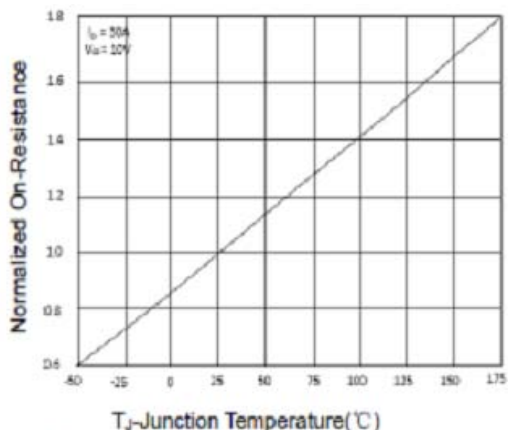


Figure 4 Rds(on)-Junction Temperature

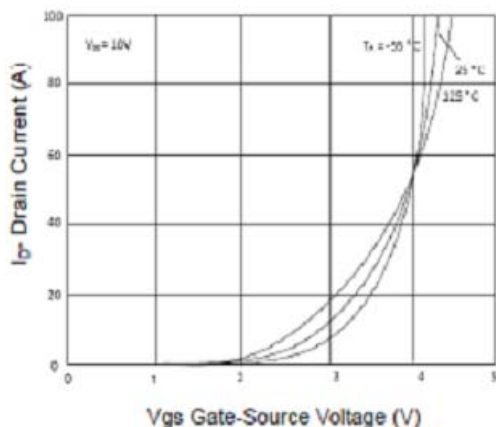


Figure 2 Transfer Characteristics

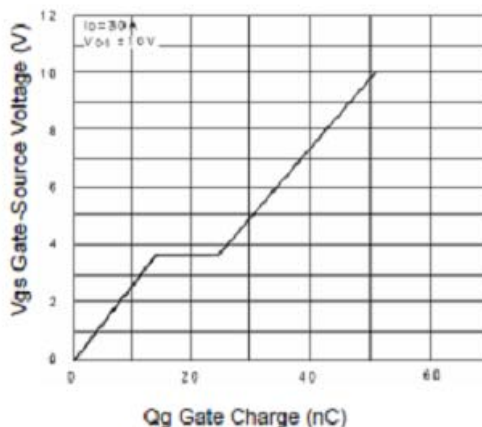


Figure 5 Gate Charge

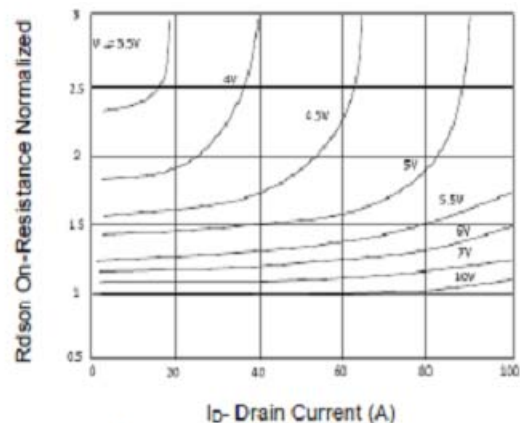


Figure 3 Rds(on)-Drain Current

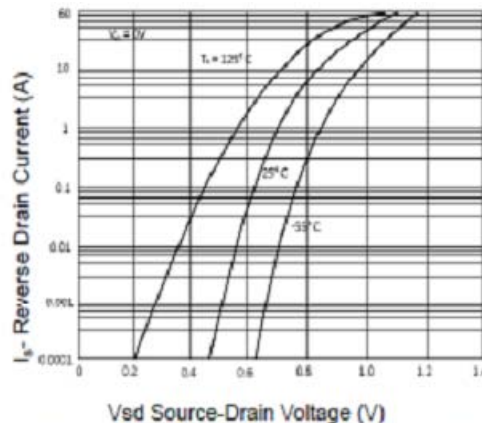


Figure 6 Source-Drain Diode Forward

Typical Characteristics

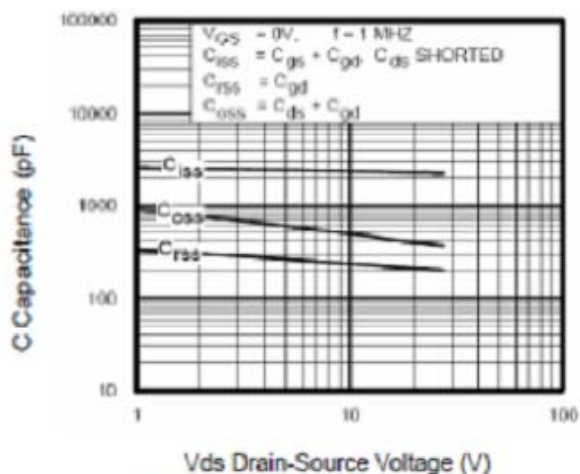


Figure 7 Capacitance vs Vds

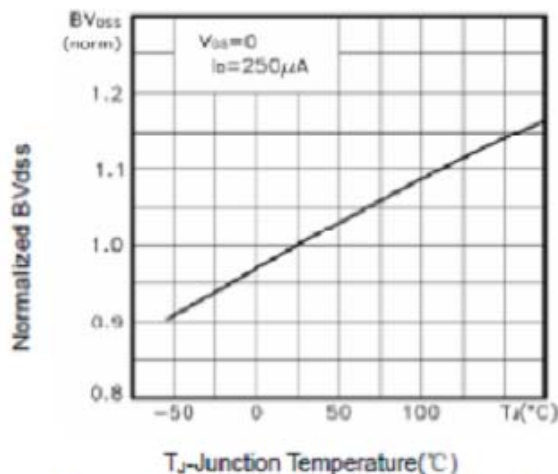


Figure 9 BV_{oss} vs Junction Temperature

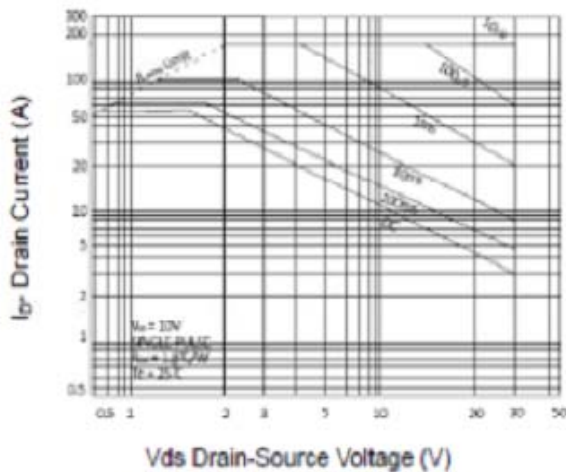


Figure 8 Safe Operation Area

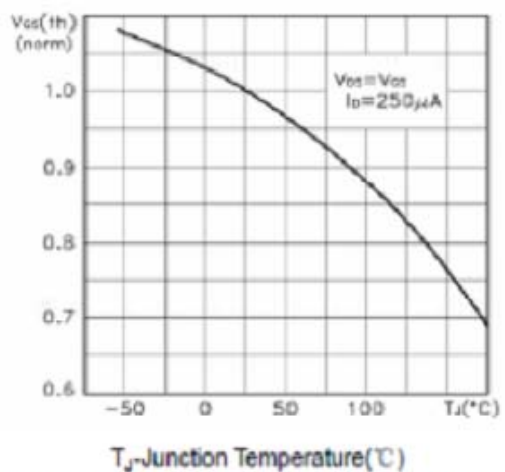


Figure 10 V_{GS(th)} vs Junction Temperature

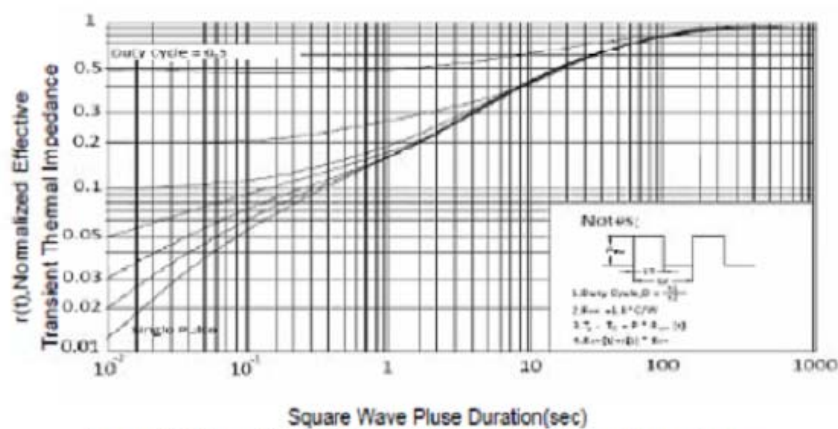
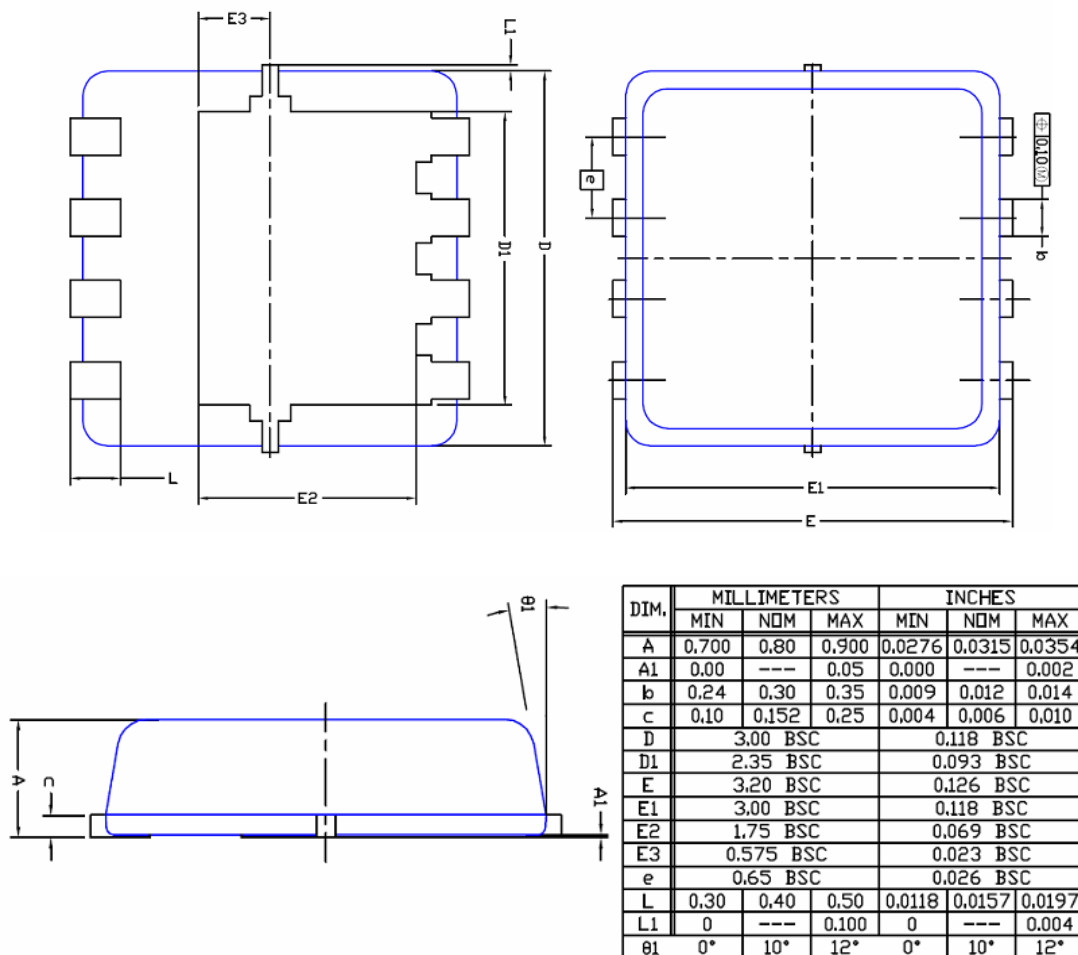


Figure 11 Normalized Maximum Transient Thermal Impedance

SE3D080M

Package Outline Dimension

DFN3X3 EP



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