

SED4060GM

**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

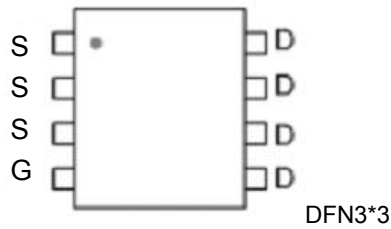
**Features**

For a single MOSFET

- $V_{DS} = 40V$
- $R_{DS(ON)} = 7m\Omega @ V_{GS}=10V$

**Pin configurations**

See Diagram below



**Absolute Maximum Ratings**

Parameter	Symbol	Rating	Units
Drain-Source Voltage	$V_{DS}$	40	V
Gate-Source Voltage	$V_{GS}$	$\pm 20$	V
Drain Current	Continuous	60	A
	Pulsed	200	
Total Power Dissipation	@TA=25°C	65	W
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	-	5	°C/W

## SED4060GM

Electrical Characteristics (T <sub>J</sub> =25°C unless otherwise noted)						
Symbol	Parameter	Test Conditions	Min	Typ	Max	Units
<b>OFF CHARACTERISTICS (Note 2)</b>						
B <sub>V</sub> DSS	Drain-Source Breakdown Voltage	I <sub>D</sub> =250μA, V <sub>GS</sub> =0 V	40			V
I <sub>DSS</sub>	Drain to Source Leakage Current	V <sub>DS</sub> =40V, V <sub>GS</sub> =0V			1	μA
I <sub>GSS</sub>	Gate-Body Leakage Current	V <sub>GS</sub> =20V			300	nA
V <sub>GS(th)</sub>	Gate Threshold Voltage	V <sub>DS</sub> = V <sub>GS</sub> , I <sub>D</sub> =250μA	1.0	1.6	2.2	V
R <sub>DS(ON)</sub>	Static Drain-Source On-Resistance	V <sub>GS</sub> =10V, I <sub>D</sub> =20A	-	7.5	9.5	mΩ
g <sub>FS</sub>	Forward Transconductance	V <sub>DS</sub> =5V, I <sub>D</sub> =20A		25		S
<b>DYNAMIC PARAMETERS</b>						
C <sub>iss</sub>	Input Capacitance	V <sub>GS</sub> =0V, V <sub>DS</sub> =20V, f=1MHz		942		pF
C <sub>oss</sub>	Output Capacitance			309		pF
C <sub>rss</sub>	Reverse Transfer Capacitance			29		pF
<b>SWITCHING PARAMETERS</b>						
Q <sub>g</sub>	Total Gate Charge	V <sub>GS</sub> =10V, V <sub>DS</sub> =20V, I <sub>D</sub> =10A		14.5		nC
Q <sub>gs</sub>	Gate Source Charge			2		nC
Q <sub>gd</sub>	Gate Drain Charge			2.5		nC
t <sub>d(on)</sub>	Turn-On Delay Time	V <sub>GS</sub> =10V, V <sub>DS</sub> =20V, R <sub>GEN</sub> =10Ω, I <sub>D</sub> =10A		6		ns
t <sub>d(off)</sub>	Turn-Off Delay Time			21		ns
t <sub>d(r)</sub>	Turn-On Rise Time			5		ns
t <sub>d(f)</sub>	Turn-Off Fall Time			5		ns
<b>Source-Drain Ratings and Characteristics</b>						
V <sub>SD</sub>	Diode Forward Voltage	V <sub>GS</sub> =0V, I <sub>S</sub> =20A			1.2	V
t <sub>rr</sub>	Reverse Recovery Time	T <sub>J</sub> =25°C, I <sub>F</sub> =10A Di/dt=100A/μs		24		ns
Q <sub>rr</sub>	Reverse Recovery Charge				19	

Typical Characteristics

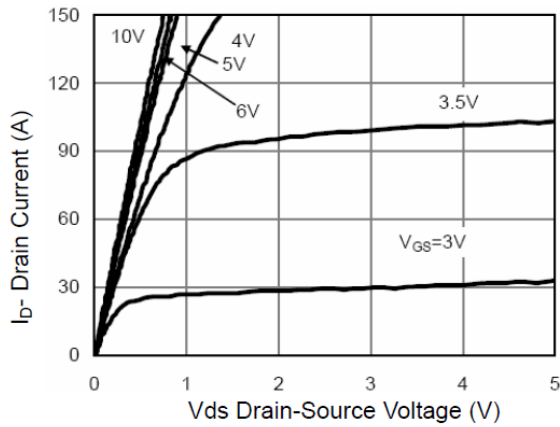


Figure 1 Output Characteristics

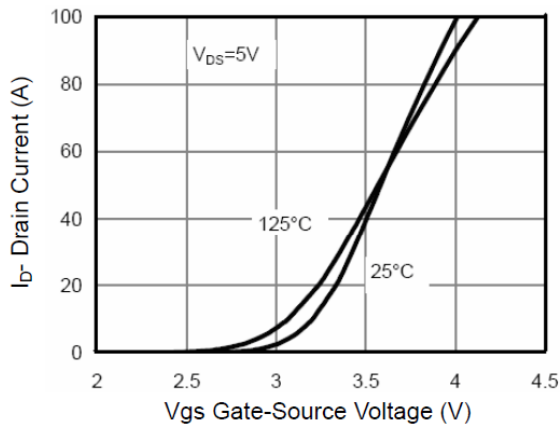


Figure 2 Transfer Characteristics

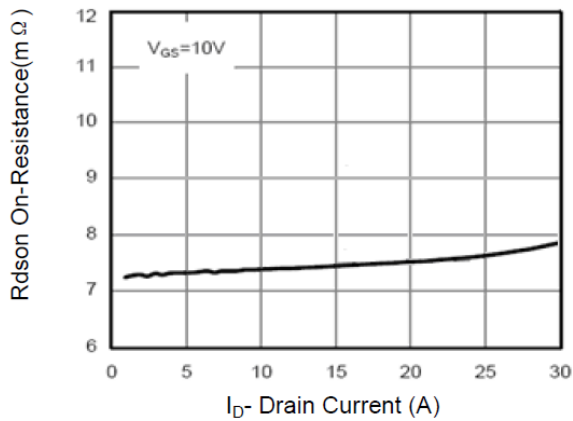


Figure 3  $R_{DS(on)}$ - Drain Current

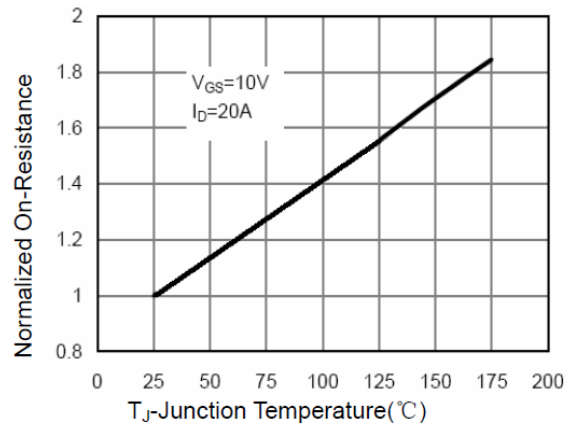


Figure 4  $R_{DS(on)}$ -Junction Temperature

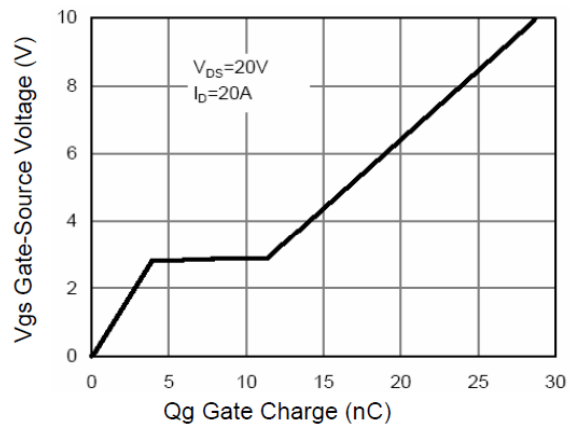


Figure 5 Gate Charge

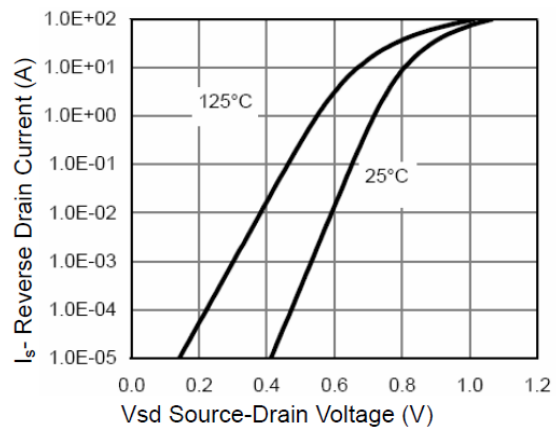


Figure 6 Source- Drain Diode Forward

Typical Characteristics

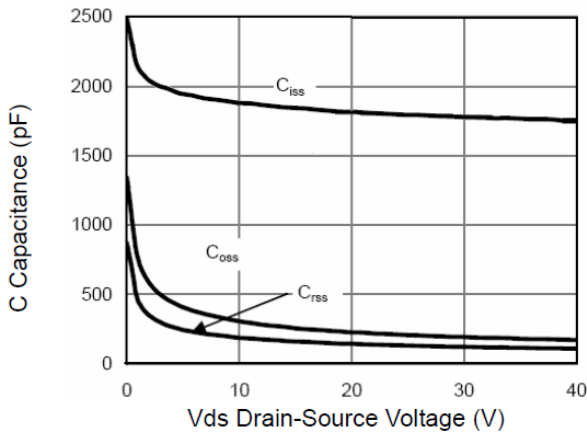


Figure 7 Capacitance vs Vds

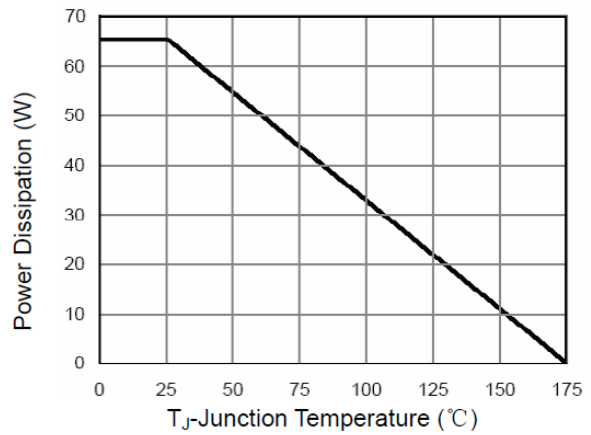


Figure 9 Power De-rating

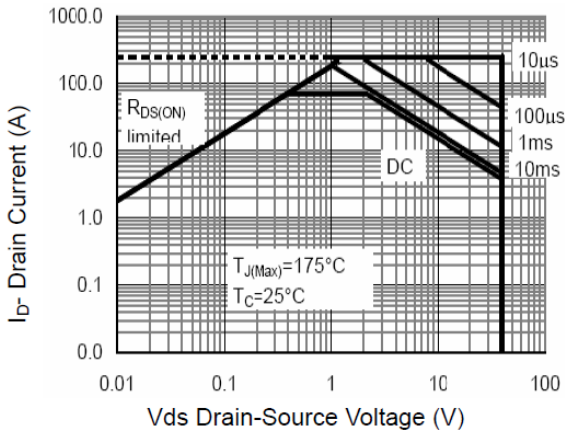


Figure 8 Safe Operation Area

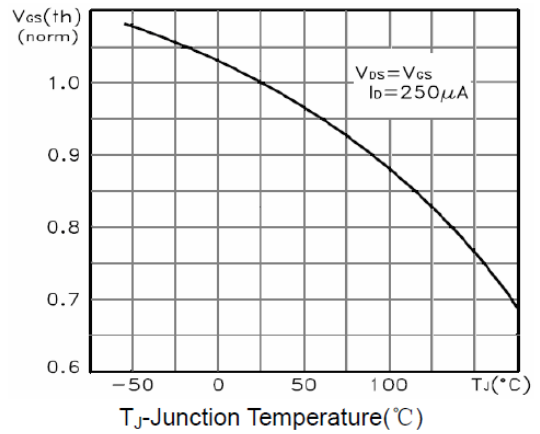


Figure 10  $V_{GS(th)}$  vs Junction Temperature

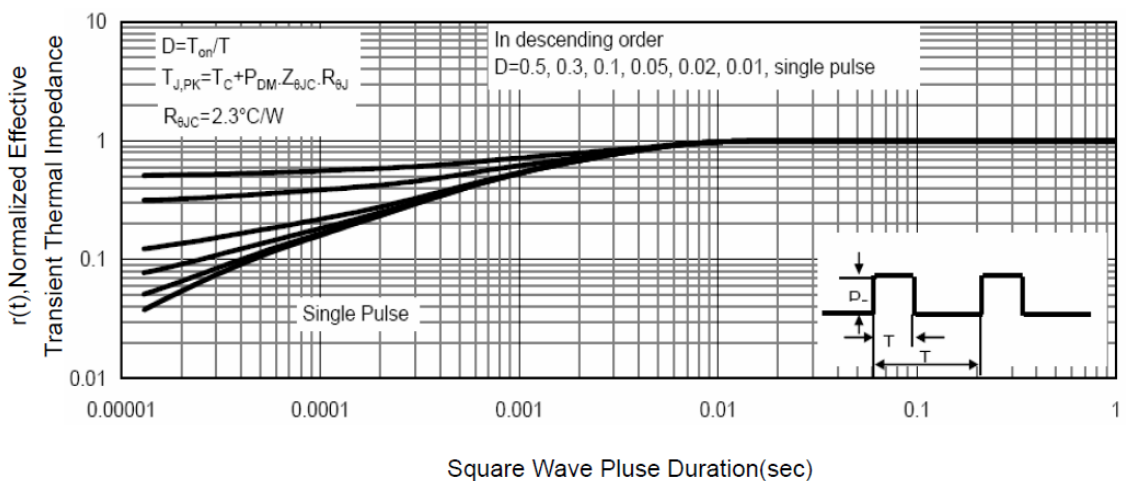
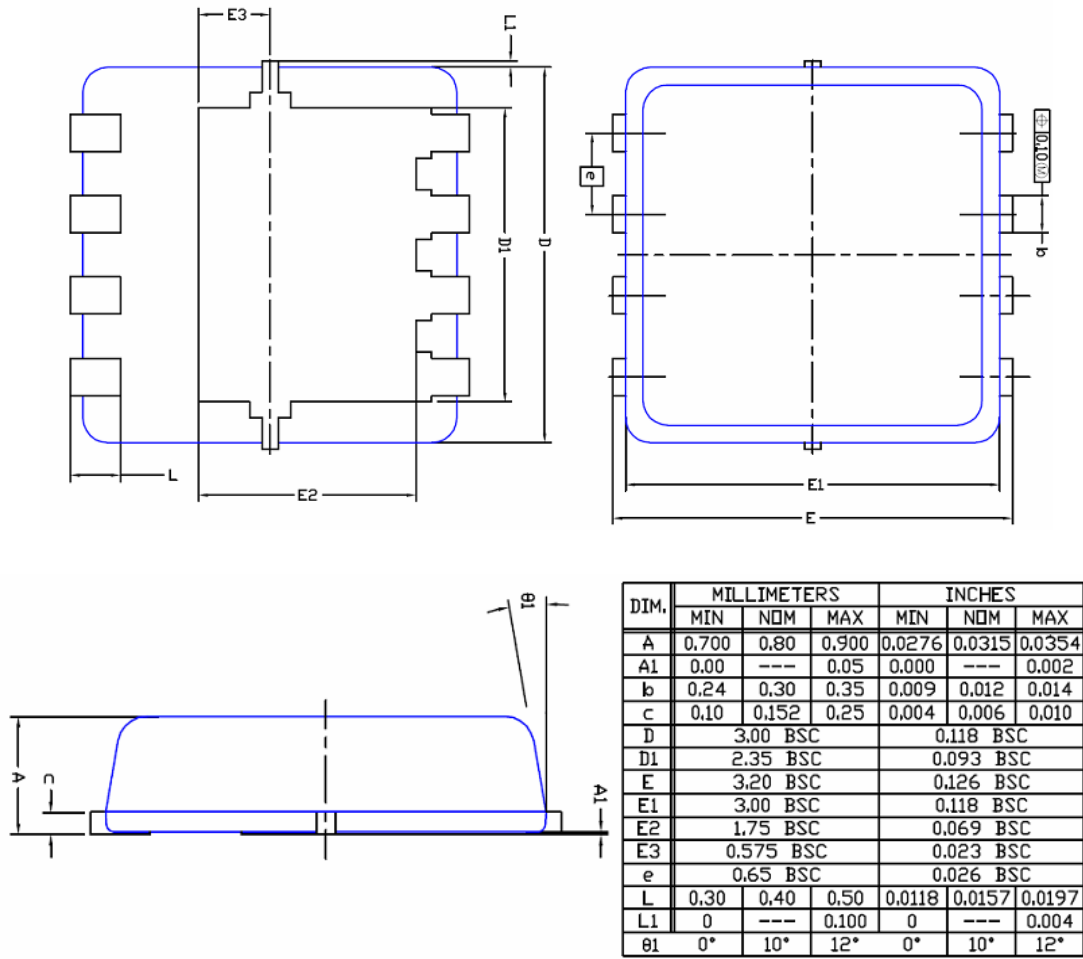


Figure 11 Normalized Maximum Transient Thermal Impedance

# SED4060GM

## Package Outline Dimension

### DFN3X3



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