

SED4060G

N-Channel Enhancement-Mode MOSFET

Revision: A

General Description

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

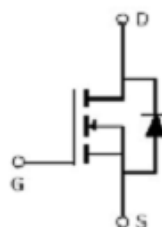
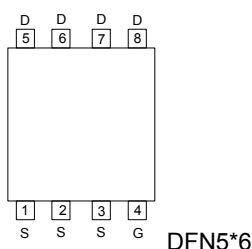
Features

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}	± 20	V
Drain Current	Continuous	I_D	60	A
	Pulsed		200	
Total Power Dissipation	@TA=25°C	P_D	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

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

Typical Characteristics

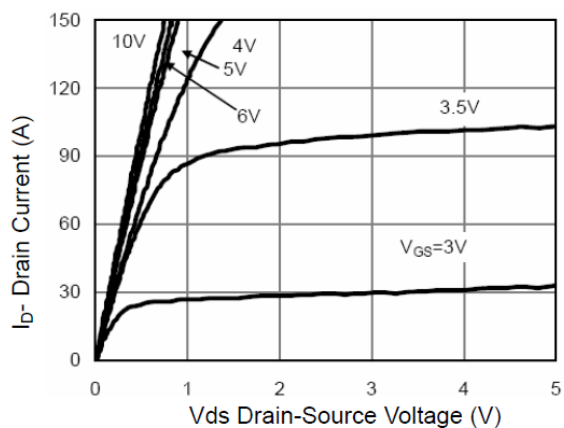


Figure 1 Output Characteristics

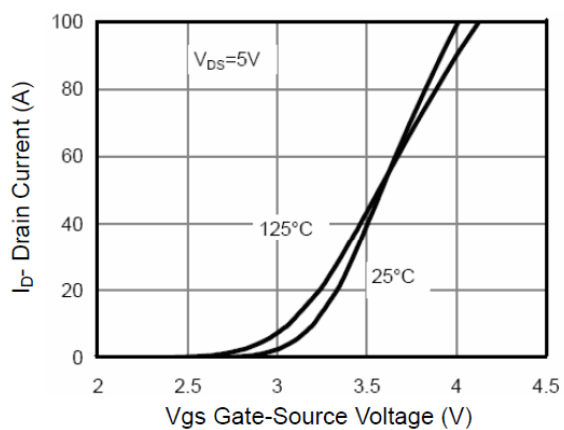


Figure 2 Transfer Characteristics

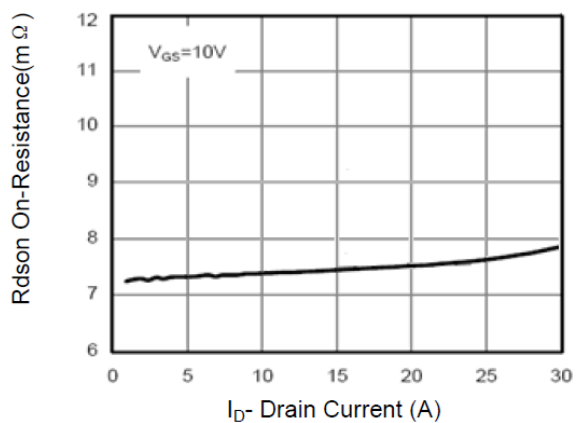


Figure 3 $R_{DS(on)}$ - Drain Current

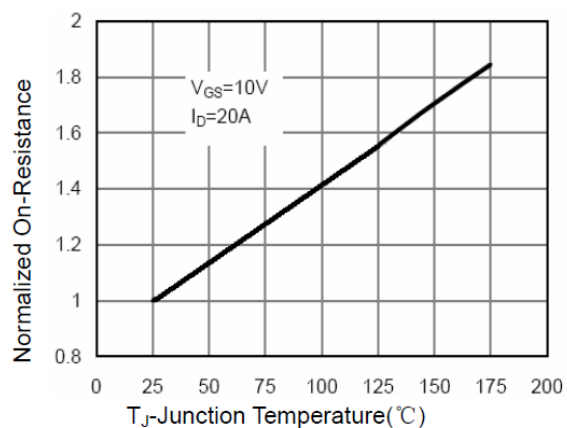


Figure 4 $R_{DS(on)}$ -Junction Temperature

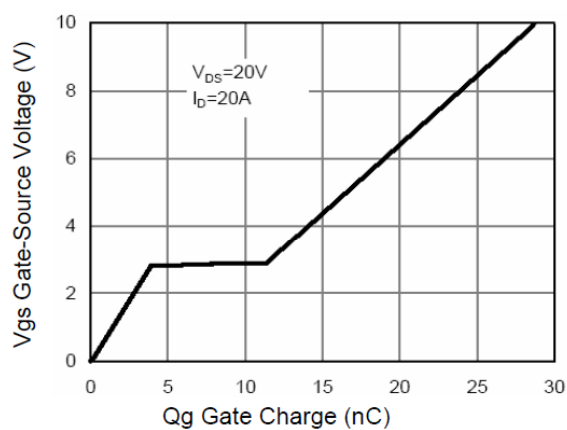


Figure 5 Gate Charge

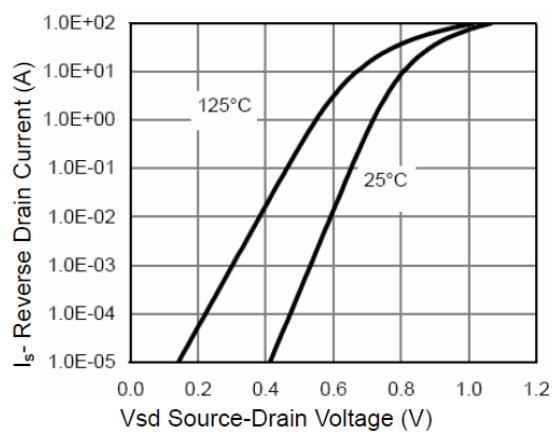


Figure 6 Source- Drain Diode Forward

Typical Characteristics

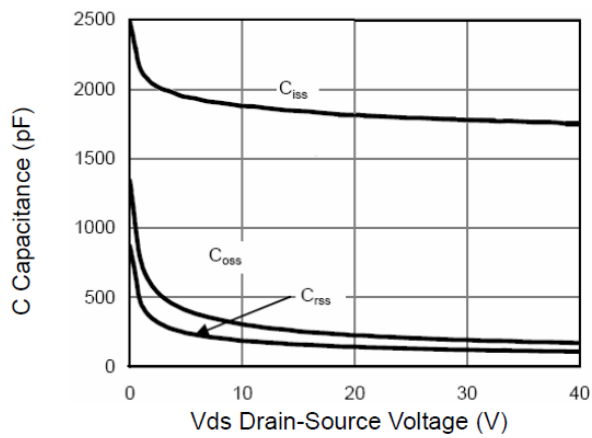


Figure 7 Capacitance vs Vds

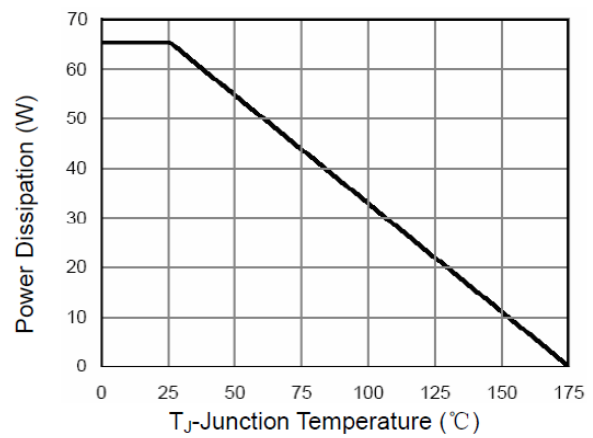


Figure 9 Power De-rating

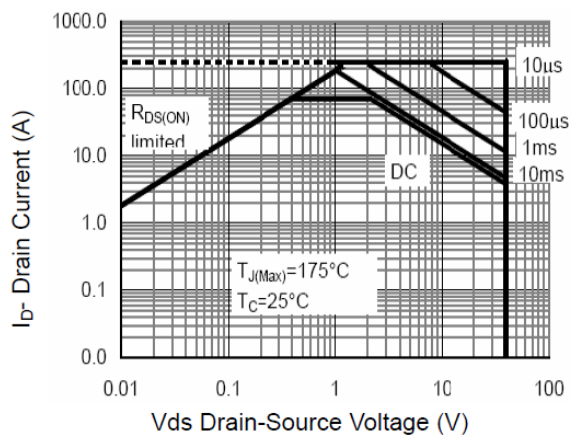


Figure 8 Safe Operation Area

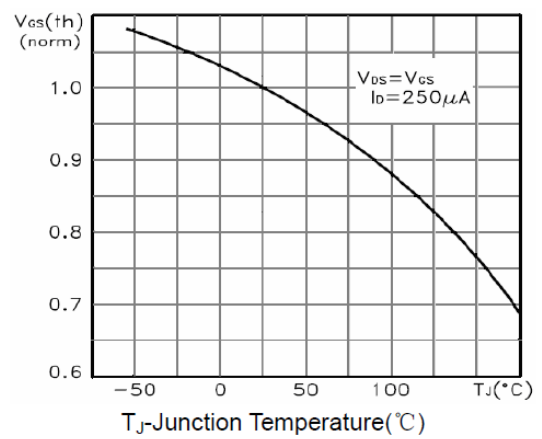


Figure 10 VGS(th) vs Junction Temperature

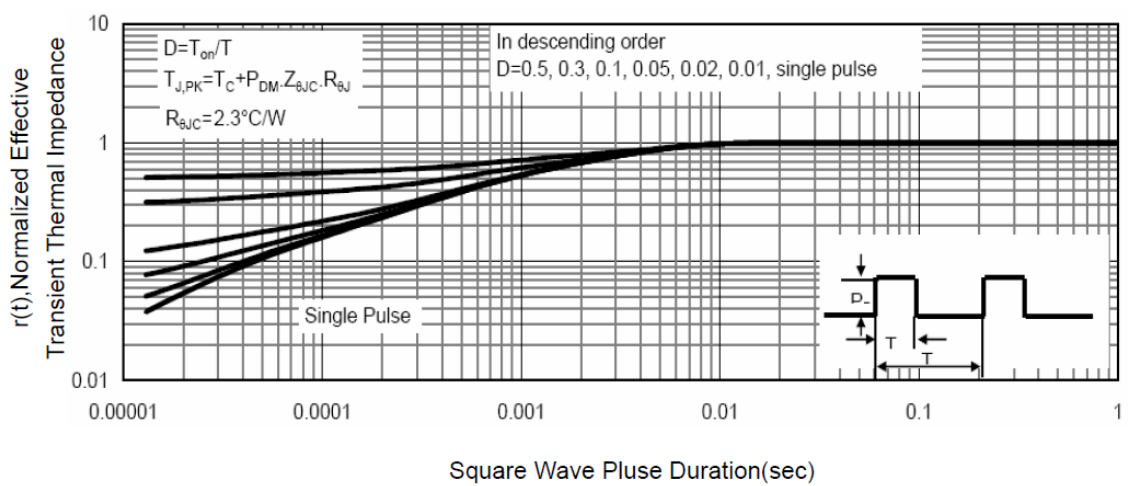
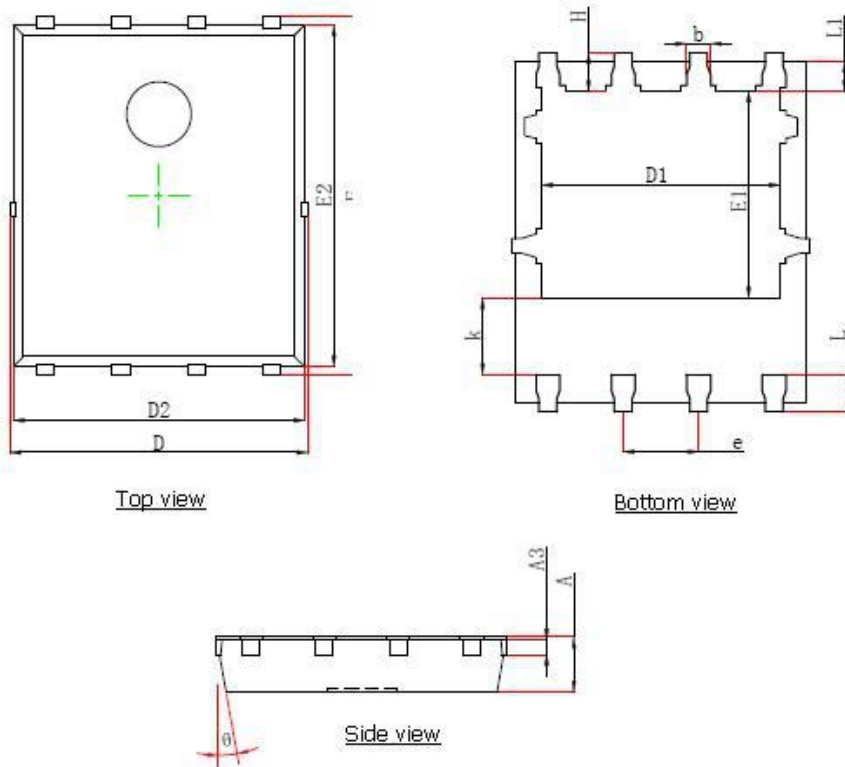


Figure 11 Normalized Maximum Transient Thermal Impedance

SED4060G

Package Outline Dimension

DFN5X6



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.900	1.000	0.035	0.039
A3	0.254REF.		0.010REF.	
D	4.944	5.096	0.195	0.201
E	5.974	6.126	0.235	0.241
D1	3.910	4.110	0.154	0.162
E1	3.375	3.575	0.133	0.141
D2	4.824	4.976	0.190	0.196
E2	5.674	5.826	0.223	0.229
k	1.190	1.390	0.047	0.055
b	0.350	0.450	0.014	0.018
e	1.270TYP.		0.050TYP.	
L	0.559	0.711	0.022	0.028
L1	0.424	0.576	0.017	0.023
H	0.574	0.726	0.023	0.029
θ	10°	12°	10°	12°

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