

SED3032G

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

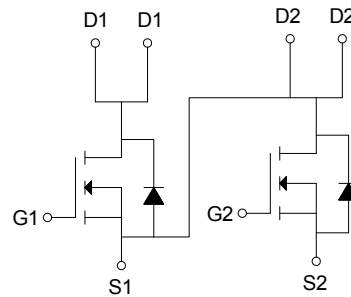
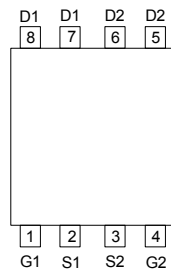
Features

For a single MOSFET

- $V_{DS} = 30V$
- $R_{DS(ON)} = 7.4m\Omega @ V_{GS}=10V$

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	30	A
	Pulsed	170	
Total Power Dissipation	@ $T_A=25^\circ C$	70	W
Operating Junction Temperature Range	T_J	-55 to 150	$^\circ C$

Thermal Resistance

Symbol	Parameter	Typ	Max	Units
$R_{\theta JA}$	Junction to Ambient ($t \leq 10s$)	40	50	$^\circ C/W$

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Q1 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			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	1.6		2.7	V
R _{DS(ON)}	Static Drain-Source On-Resistance	V _{GS} =10V, I _D =20A		7.4	8.5	mΩ
DYNAMIC PARAMETERS						
C _{iss}	Input Capacitance	V _{GS} =0V, V _{DS} =15V, f=1MHz		680		pF
C _{oss}	Output Capacitance			102		pF
C _{rss}	Reverse Transfer Capacitance			71		pF
SWITCHING PARAMETERS						
Q _g	Total Gate Charge ²	V _{GS} =10V, V _{DS} =15V, I _D =20A		17.5		nC
Q _{gs}	Gate Source Charge			43		nC
Q _{gd}	Gate Drain Charge			4.1		nC
t _{d(on)}	Turn-On Delay Time	V _{GS} =10V, V _{DS} =15V, R _{GEN} =3Ω I _D =20A		5		ns
t _{d(off)}	Turn-Off Delay Time			19		ns
t _{d(r)}	Turn-On Rise Time			12		ns
t _{d(f)}	Turn-Off Fall Time			6		ns
Source-Drain Diode Characteristics						
V _{SD}	Diode Forward Voltage	V _{GS} =0V, I _S =24A			1.2	V
I _S	Diode Forward Current				30	A
t _{rr}	Reverse Recovery Time	T _J =25°C, I _F =20A		19		nS
Q _{rr}	Reverse Recovery Charge	Di/dt=100A/μs		10		nC
t _{on}	Forward Turn-On Time	Intrinsic turn-on time is negligible(turn-on is dominated by LS)				

Typical Characteristics

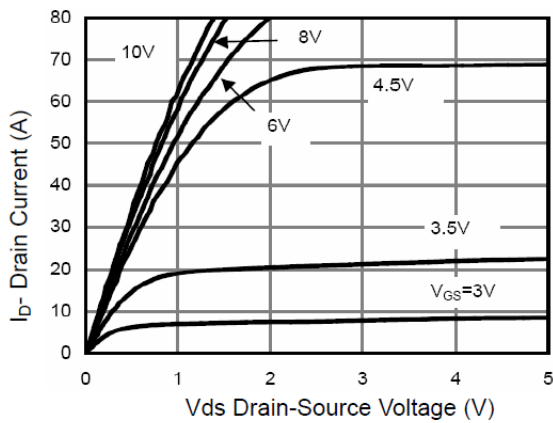


Figure 1 Output Characteristics

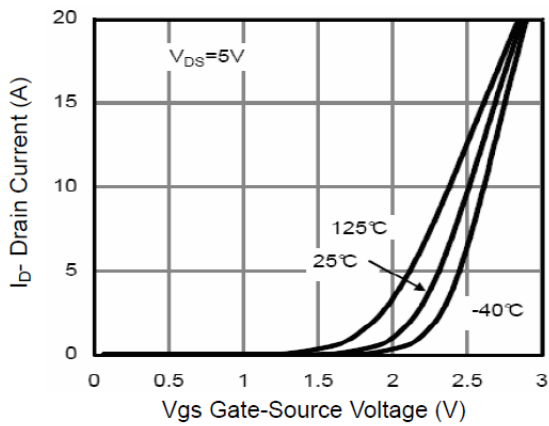


Figure 2 Transfer Characteristics

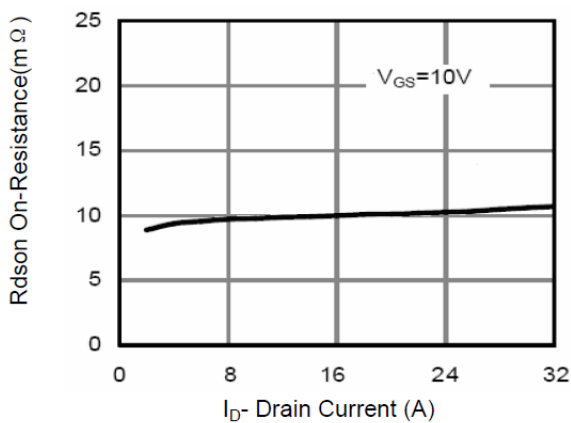


Figure 3 $R_{DS(on)}$ - Drain Current

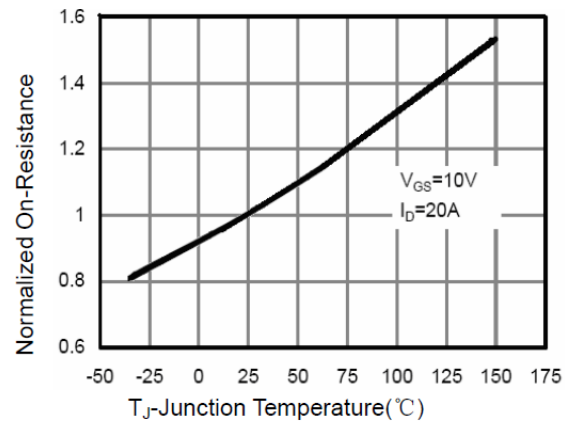


Figure 4 $R_{DS(on)}$ -Junction Temperature

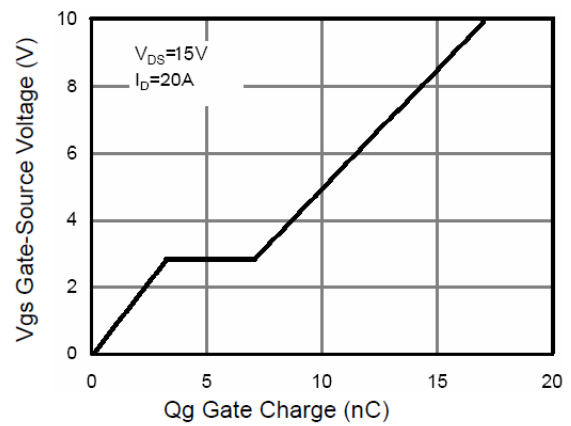


Figure 5 Gate Charge

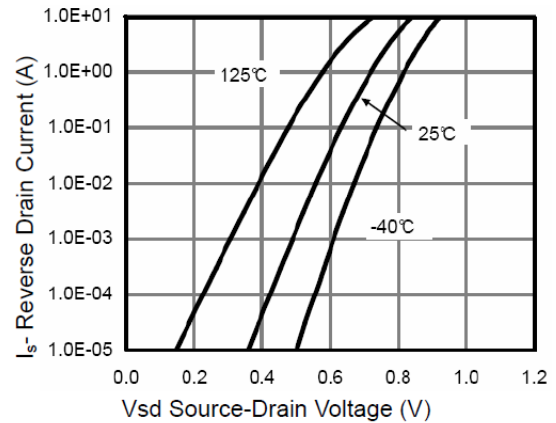


Figure 6 Source- Drain Diode Forward

Typical Characteristics

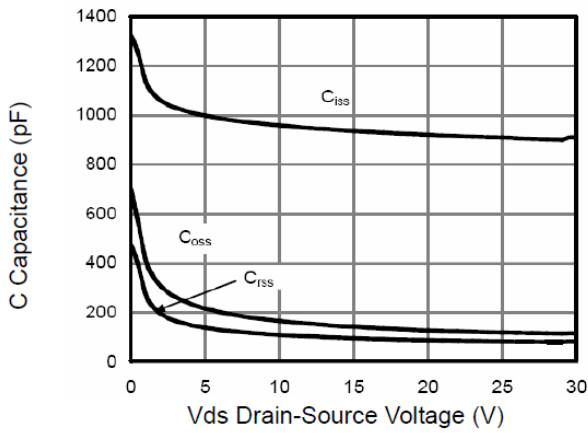


Figure 7 Capacitance vs Vds

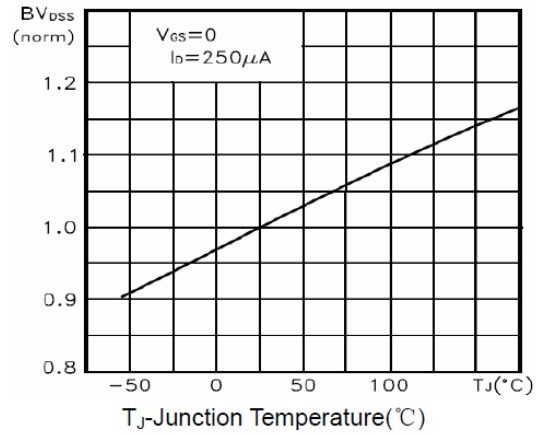


Figure 9 BV_{DSS} vs Junction Temperature

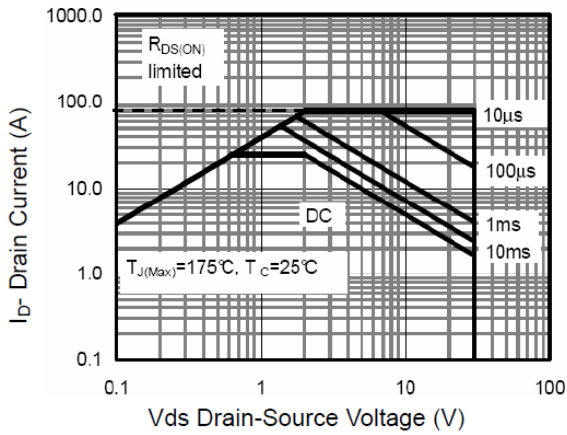


Figure 8 Safe Operation Area

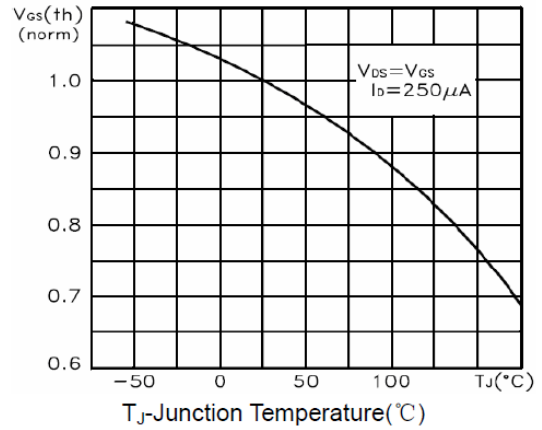


Figure 10 $V_{GS(th)}$ vs Junction Temperature

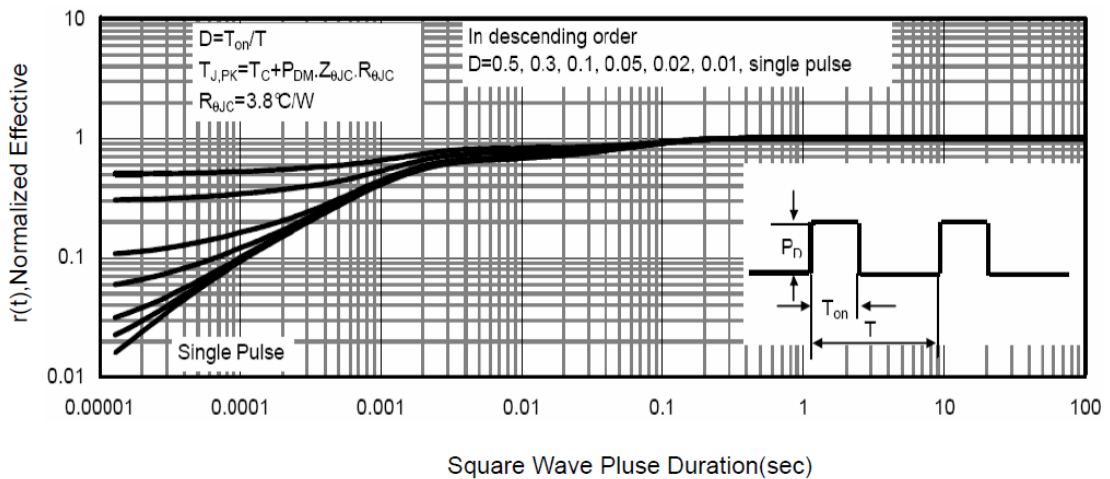
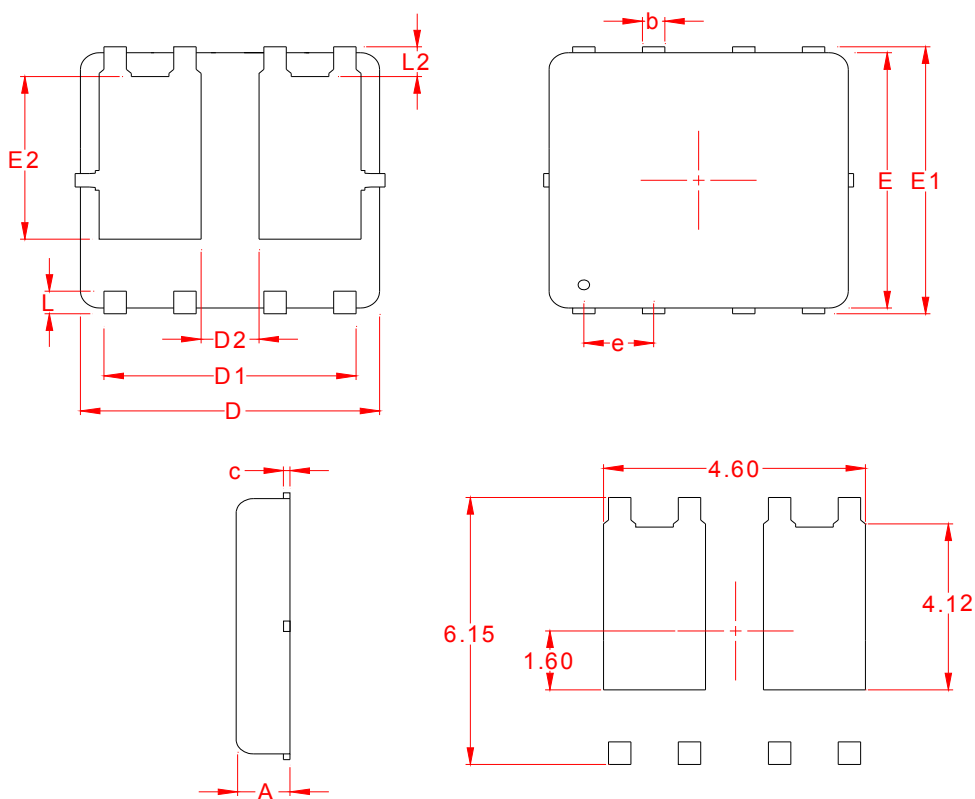


Figure 11 Normalized Maximum Transient Thermal Impedance

DFN5x6 EP2



SYMBOLS	DIMENSIONS IN MILLIMETERS			DIMENSIONS IN INCHES		
	MIN	NOM	MAX	MIN	NOM	MAX
A	0.85	0.95	1.00	0.033	0.037	0.039
A1	0.00	—	0.05	0.000	—	0.002
b	0.30	0.40	0.50	0.012	0.016	0.020
c	0.15	0.20	0.25	0.006	0.008	0.010
D	5.20 BSC			0.205 BSC		
D1	4.35 BSC			0.171 BSC		
D2	0.50	0.60	0.75	0.020	0.024	0.030
E	5.55 BSC			0.219 BSC		
E1	6.05 BSC			0.238 BSC		
E2	3.82 BSC			0.150 BSC		
e	1.27 BSC			0.050 BSC		
L	0.45	0.55	0.65	0.018	0.022	0.026
L1	0	—	0.15	0	—	0.006
L2	0.68 REF			0.027 REF		
θ	0°	—	10°	0°	—	10°

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