



- ★ Green Device Available
- ★ Super Low Gate Charge
- ★ ESD Protection
- ★ Excellent Cdv/dt effect decline
- ★ Advanced high cell density Trench

Product Summary

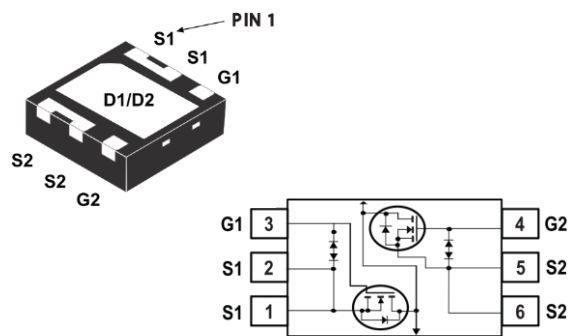
BVDSS	RDSON	ID
20V	22.0mΩ	6A

Description

The FKCB8236 is the high cell density trenched N-ch MOSFETs, which provides excellent RDSON and efficiency for most of the small power switching and load switch applications.

The FKCB8236 meet the RoHS and Green Product requirement with full function reliability approved.

DFN2X2 Pin Configuration



Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
V _{DS}	Drain-Source Voltage	20	V
V _{GS}	Gate-Source Voltage	±12	V
I _D @T _A =25°C	Continuous Drain Current ¹	6	A
I _D @T _A =70°C	Continuous Drain Current ¹	4.8	A
I _{DM}	Pulsed Drain Current ²	36	A
P _D @T _A =25°C	Total Power Dissipation ³	1.4	W
T _{STG}	Storage Temperature Range	-55 to 150	°C
T _J	Operating Junction Temperature Range	-55 to 150	°C

Thermal Data

Symbol	Parameter	Typ.	Max.	Unit
R _{θJA}	Thermal Resistance Junction-ambient ¹	---	90	°C/W

**N-Channel Electrical Characteristics ($T_J=25\text{ }^\circ\text{C}$, unless otherwise noted)**

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
BV_{DSS}	Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D=250\mu A$	20	---	---	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance ²	$V_{GS}=4.5V, I_D=3.0A$	14.0	17.5	22.0	m Ω
		$V_{GS}=4.0V, I_D=3.0A$	14.5	18.0	22.5	
		$V_{GS}=3.7V, I_D=3.0A$	15.0	18.5	23.0	
		$V_{GS}=3.1V, I_D=3.0A$	15.5	19.5	25.0	
		$V_{GS}=2.5V, I_D=3.0A$	17.5	22.0	29	
$V_{GS(th)}$	Gate Threshold Voltage	$V_{GS}=V_{DS}, I_D=250\mu A$	0.5	0.7	1.5	V
I_{DSS}	Drain-Source Leakage Current	$V_{DS}=16V, V_{GS}=0V, T_J=25^\circ C$	---	---	1	uA
		$V_{DS}=16V, V_{GS}=0V, T_J=55^\circ C$	---	---	5	
I_{GSS}	Gate-Source Leakage Current	$V_{GS}=\pm 8V, V_{DS}=0V$	---	---	± 10	uA
g_{fs}	Forward Transconductance	$V_{DS}=5V, I_D=3.0A$	---	20	---	S
Q_g	Total Gate Charge	$V_{DS}=15V, V_{GS}=4.5V, I_D=6A$	---	10.4	---	nC
Q_{gs}	Gate-Source Charge		---	1.3	---	
Q_{gd}	Gate-Drain Charge		---	2.6	---	
$T_{d(on)}$	Turn-On Delay Time	$V_{DD}=10V, V_{GS}=4.5V, R_G=3.3\Omega$ $I_D=3A$	---	3.2	---	ns
T_r	Rise Time		---	9.8	---	
$T_{d(off)}$	Turn-Off Delay Time		---	31	---	
T_f	Fall Time		---	3.6	---	
C_{iss}	Input Capacitance	$V_{DS}=15V, V_{GS}=0V, f=1MHz$	---	630	---	pF
C_{oss}	Output Capacitance		---	66	---	
C_{riss}	Reverse Transfer Capacitance		---	63	---	

Diode Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I_S	Continuous Source Current ^{1,4}	$V_G=V_D=0V$, Force Current	---	---	6	A
V_{SD}	Diode Forward Voltage ²	$V_{GS}=0V, I_S=1A, T_J=25^\circ C$	---	0.86	1.2	V

Note :

1. The data tested by surface mounted on a 1 inch² FR-4 board with 2OZ copper, $t \leq 10s$.
2. The data tested by pulsed, pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$
3. The power dissipation is limited by $150^\circ C$ junction temperature
4. The data is theoretically the same as I_D and I_{DM} , in real applications, should be limited by total power dissipation.

N-Channel Typical Characteristics

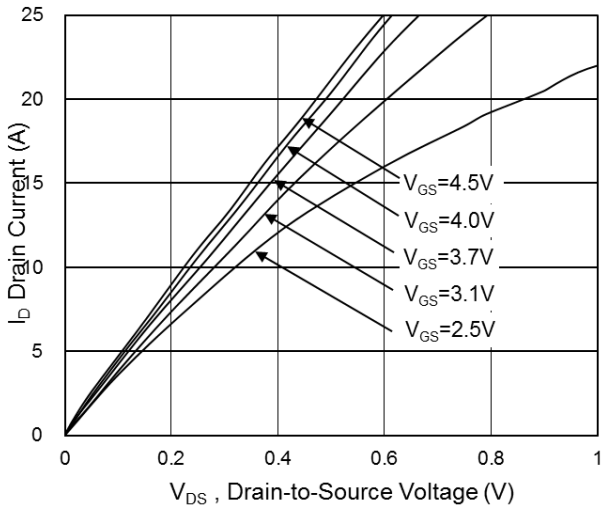


Fig.1 Typical Output Characteristics

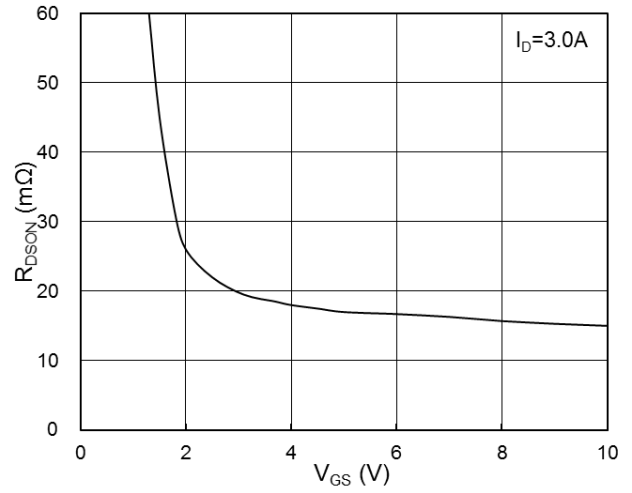


Fig.2 On-Resistance vs. Gate-Source voltage

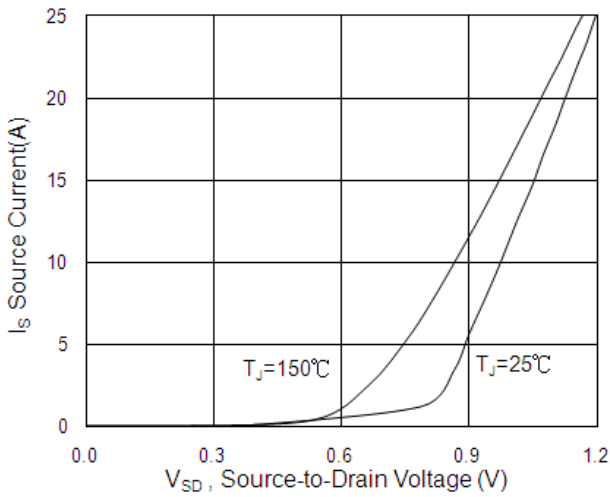


Fig.3 Forward Characteristics Of Reverse

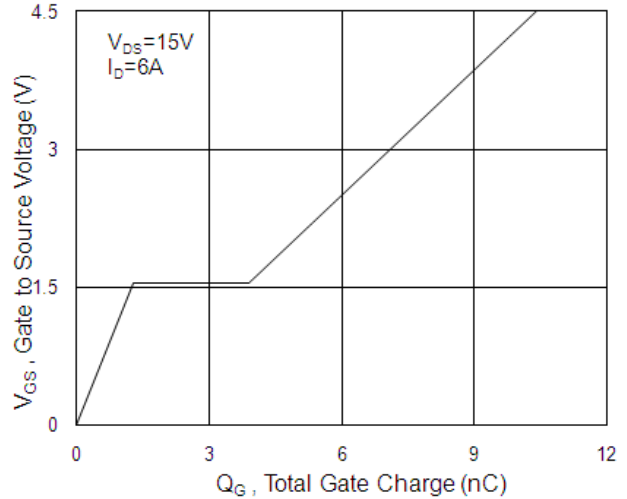


Fig.4 Gate-Charge Characteristics

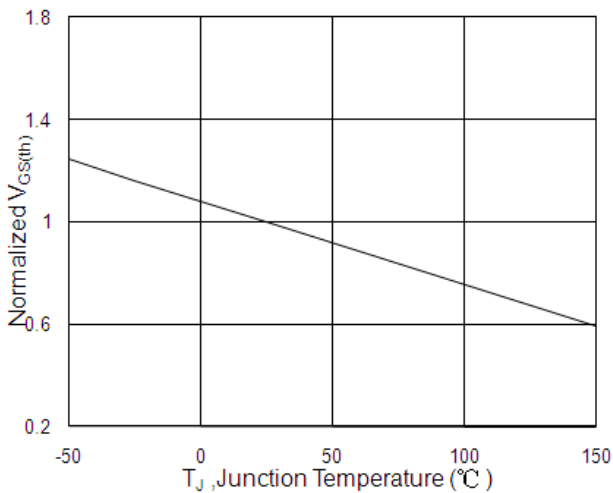


Fig.5 Normalized $V_{GS(th)}$ vs. T_J

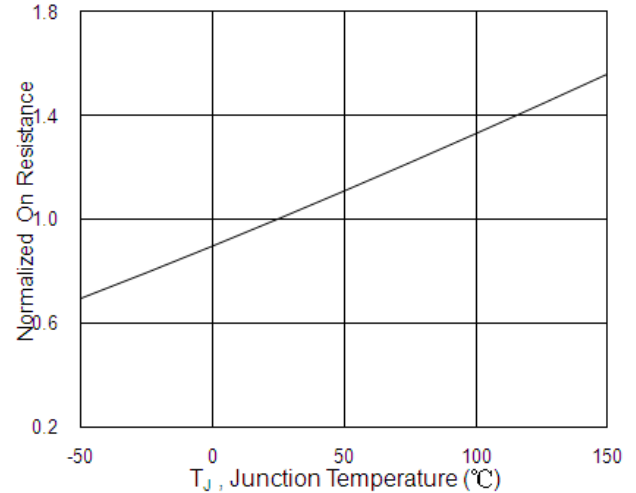


Fig.6 Normalized $R_{DS(on)}$ vs. T_J

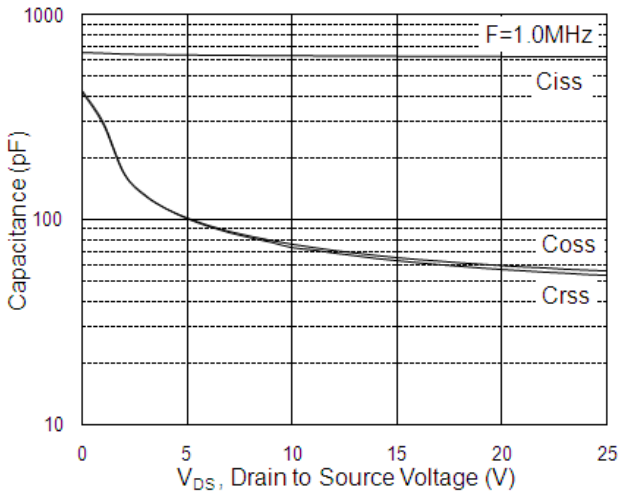


Fig.7 Capacitance

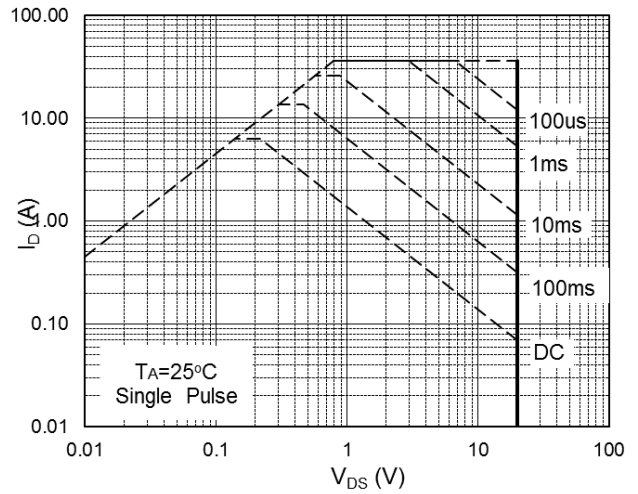


Fig.8 Safe Operating Area

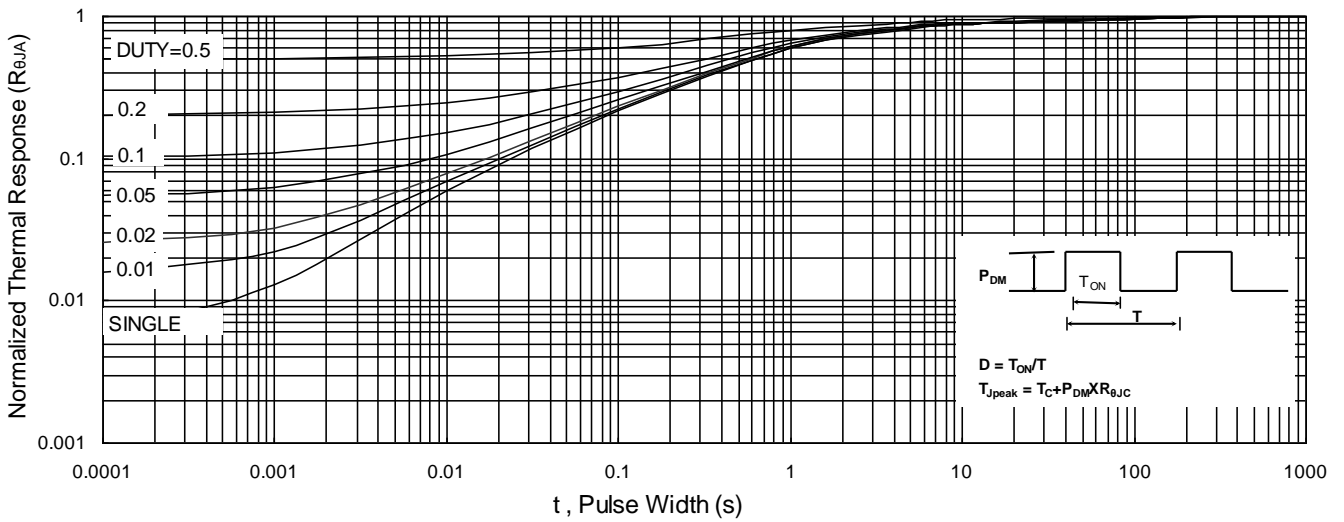


Fig.9 Normalized Maximum Transient Thermal Impedance

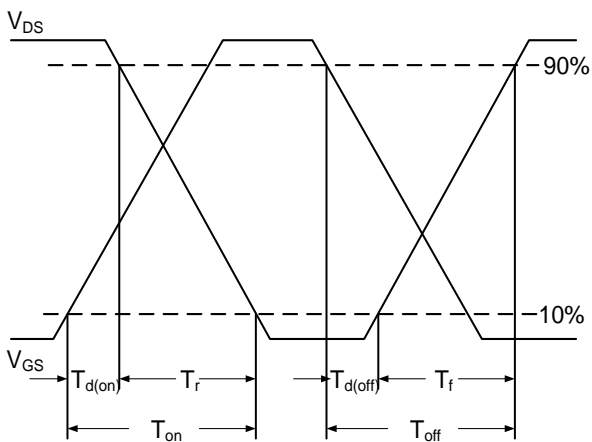


Fig.10 Switching Time Waveform

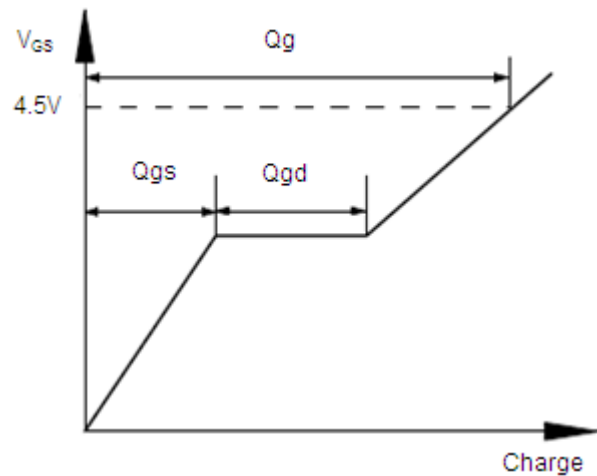
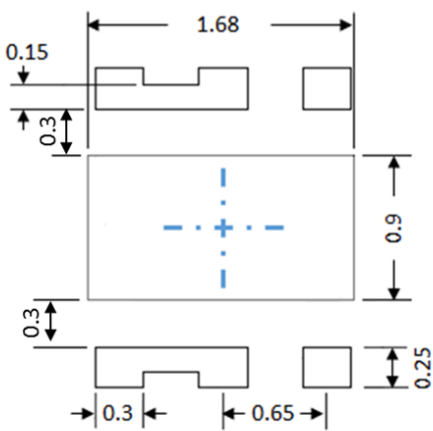
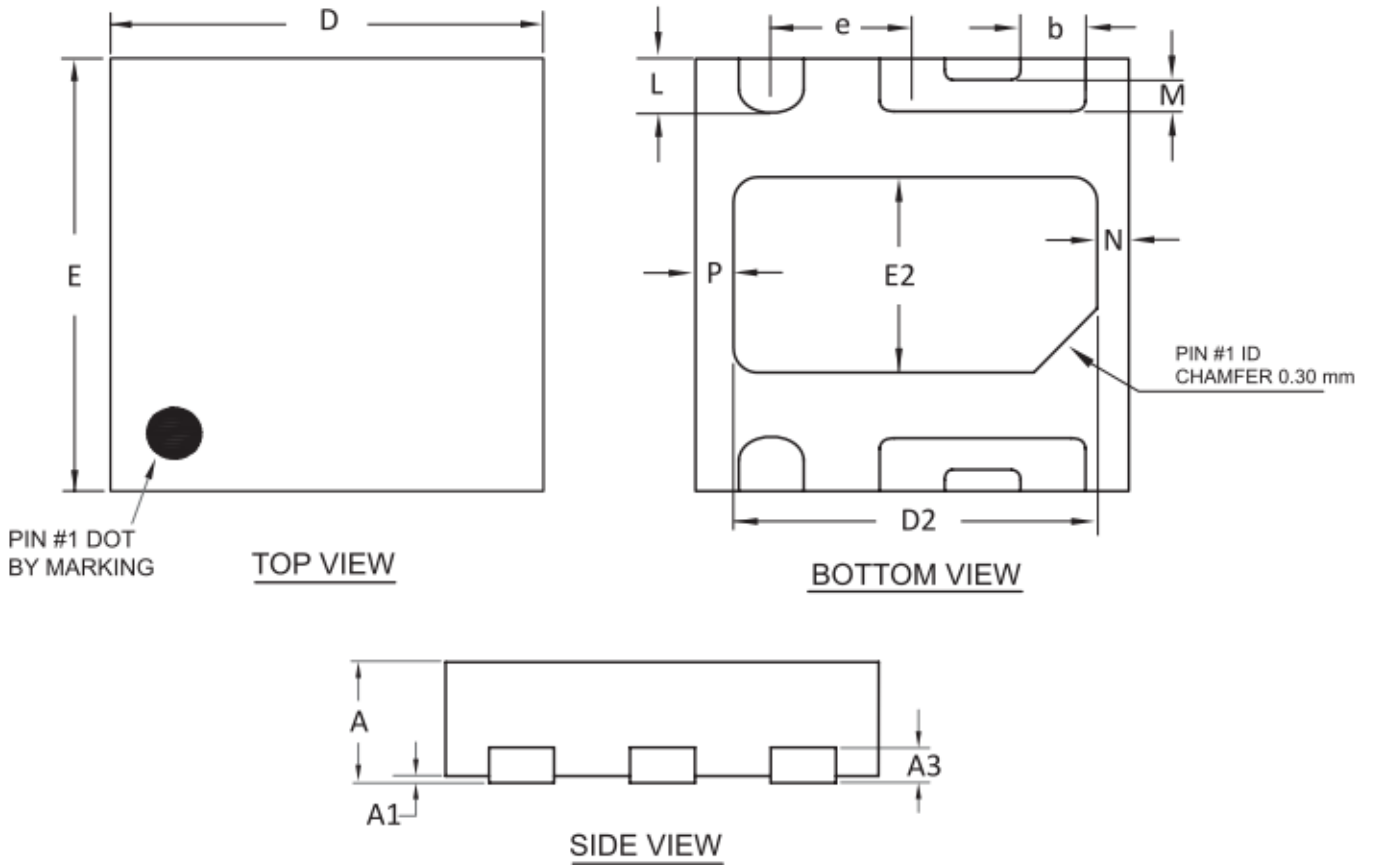


Fig.11 Gate Charge Waveform

DFN2X2 Package Outline Dimensions



Recommended Land Pattern

SYMBOLS	MILLIMETERS			INCHES		
	MIN.	NOM.	MAX.	MIN.	NOM.	MAX.
A	—	0.550	0.600	—	0.022	0.024
A1	0.000	—	0.050	0.000	—	0.002
A3	0.150 BSC			0.006 BSC		
D	1.950	2.000	2.050	0.077	0.079	0.081
E	1.950	2.000	2.050	0.077	0.079	0.081
D2	1.625	1.675	1.725	0.064	0.066	0.068
E2	0.850	0.900	0.950	0.033	0.035	0.037
L	0.250 BSC			0.010 BSC		
b	0.250	0.300	0.350	0.010	0.012	0.014
e	0.650 BSC			0.026 BSC		
M	0.150 BSC			0.006 BSC		
N	0.150 BSC			0.006 BSC		
P	0.175 BSC			0.007 BSC		



Marking Instruction

