

General Description

The HSCB8236 is the high cell density trenched N-ch MOSFETs, which provides excellent R_{DS(on)} and efficiency for most of the small power switching and load switch applications.

The HSCB8236 meet the RoHS and Green Product requirement with full function reliability approved.

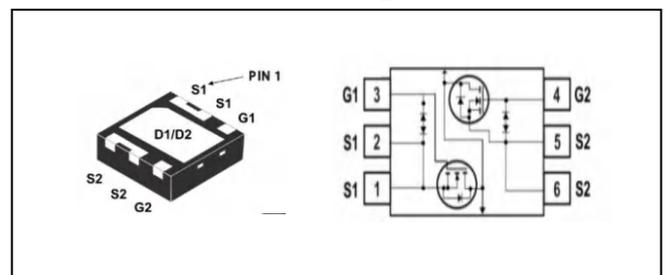
Features

- Green Device Available
- Super Low Gate Charge
- Excellent C_{dv/dt} effect decline
- Advanced high cell density Trench Technology
- ESD Protection

Product Summary

V _{DS}	20	V
R _{DS(ON),max}	22	mΩ
I _D	6	A

DFN2*2-6L 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, V _{GS} @ 4.5V ¹	6	A
I _D @T _A =70°C	Continuous Drain Current, V _{GS} @ 4.5V ¹	4.7	A
I _{DM}	Pulsed Drain Current ²	24	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	Max.	Unit
R _{θJA}	Thermal Resistance Junction-ambient ¹	90	°C/W

DUAL N-Ch 20V Fast Switching MOSFETs
Electrical Characteristics (T_J=25 °C, unless otherwise noted)

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _D =250uA	20	---	---	V
R _{DS(ON)}	Static Drain-Source On-Resistance ²	V _{GS} =4.5V, I _D =3A	---	18	22	mΩ
		V _{GS} =2.5V, I _D =3A	---	22	29	
V _{GS(th)}	Gate Threshold Voltage	V _{GS} =V _{DS} , I _D =250uA	0.5	0.7	1.5	V
I _{DSS}	Drain-Source Leakage Current	V _{DS} =16V, V _{GS} =0V, T _J =25°C	---	---	1	uA
		V _{DS} =16V, V _{GS} =0V, T _J =55°C	---	---	5	
I _{GSS}	Gate-Source Leakage Current	V _{GS} =±8V, V _{DS} =0V	---	---	±10	uA
g _{fs}	Forward Transconductance	V _{DS} =5V, I _D =3A	---	20	---	S
Q _g	Total Gate Charge (4.5V)	V _{DS} =15V, V _{GS} =4.5V, I _D =4A	---	10	---	nC
Q _{gs}	Gate-Source Charge		---	1.3	---	
Q _{gd}	Gate-Drain Charge		---	2.4	---	
T _{d(on)}	Turn-On Delay Time	V _{DS} =10V, V _{GS} =4.5V, R _G =3.3Ω I _D =3A	---	3.4	---	ns
T _r	Rise Time		---	9.8	---	
T _{d(off)}	Turn-Off Delay Time		---	36	---	
T _f	Fall Time		---	3.2	---	
C _{iss}	Input Capacitance	V _{DS} =15V, V _{GS} =0V, f=1MHz	---	640	---	pF
C _{oss}	Output Capacitance		---	69	---	
C _{rss}	Reverse Transfer Capacitance		---	30	---	

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
I _{SM}	Pulsed Source Current ^{2,4}		---	---	24	A
V _{SD}	Diode Forward Voltage ²	V _{GS} =0V, I _S =1A, T _J =25°C	---	---	1.2	V

Note :

- 1.The data tested by surface mounted on a 1 inch² FR-4 board with 2OZ copper.
- 2.The data tested by pulsed , pulse width ≤ 300us , duty cycle ≤ 2%
- 3.The power dissipation is limited by 150°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.

Typical Characteristics

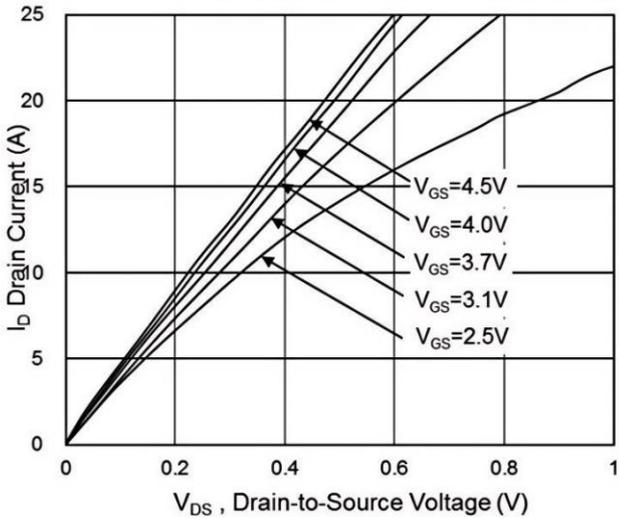


Fig.1 Typical Output Characteristics

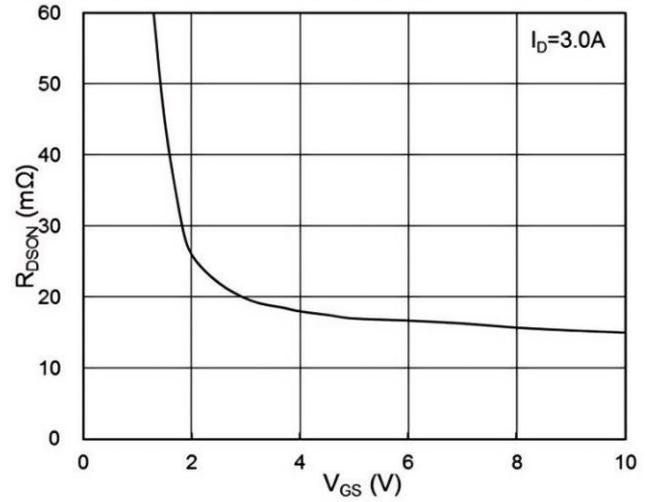


Fig.2 On-Resistance vs. Gate-Source

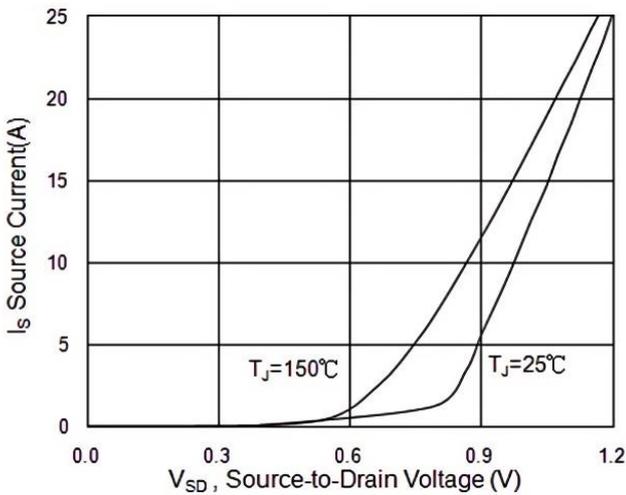


Fig.3 Forward Characteristics Of Reverse

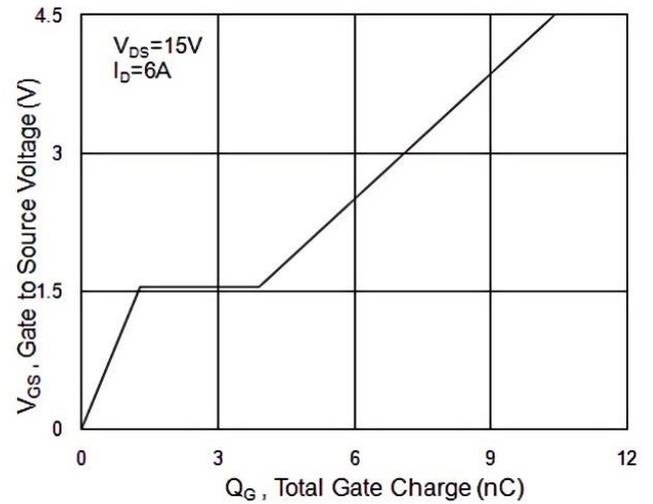


Fig.4 Gate-Charge Characteristics

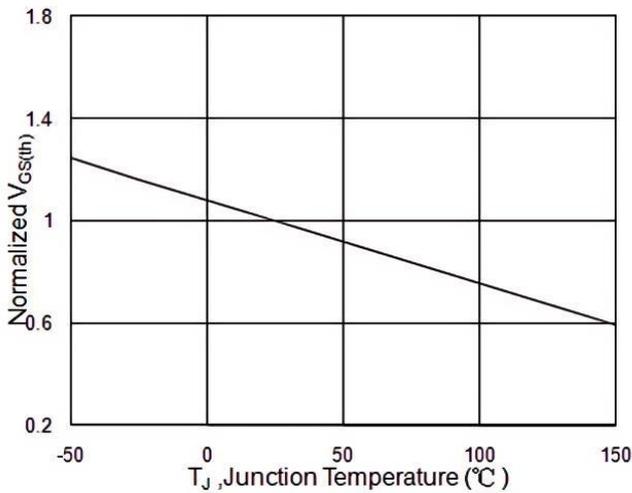


Fig.5 Normalized $V_{GS(th)}$ vs. T_J

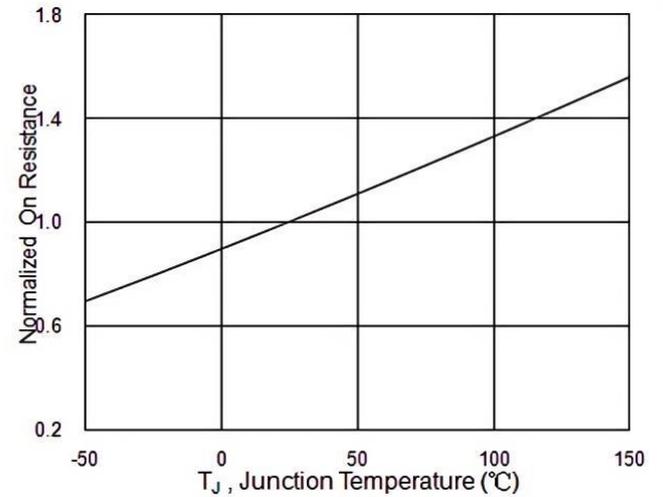


Fig.6 Normalized $R_{DS(on)}$ vs. T_J

DUAL N-Ch 20V Fast Switching MOSFETs

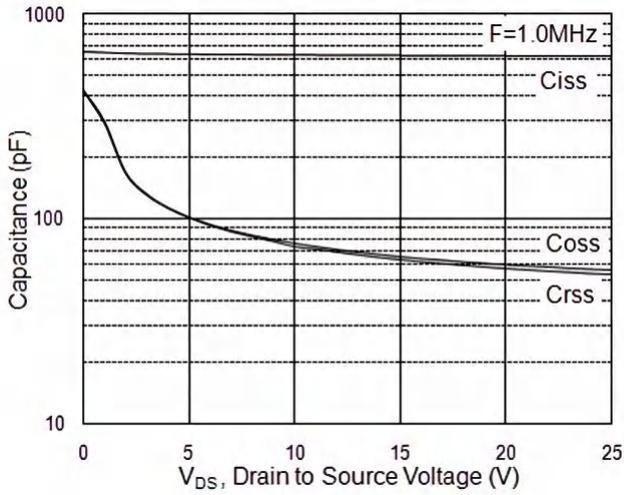


Fig.7 Capacitance

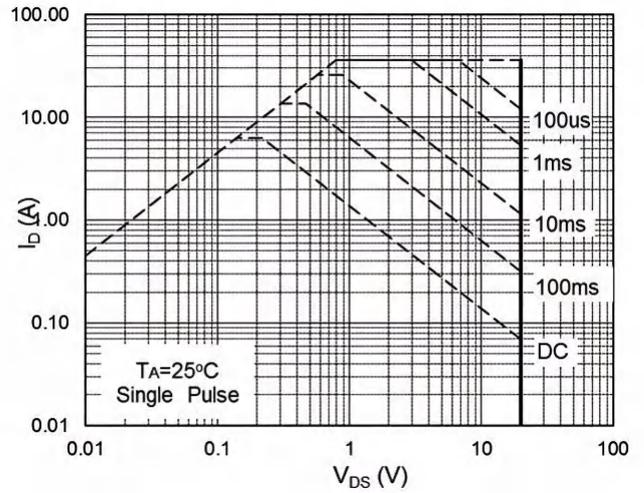


Fig.8 Safe Operating Area

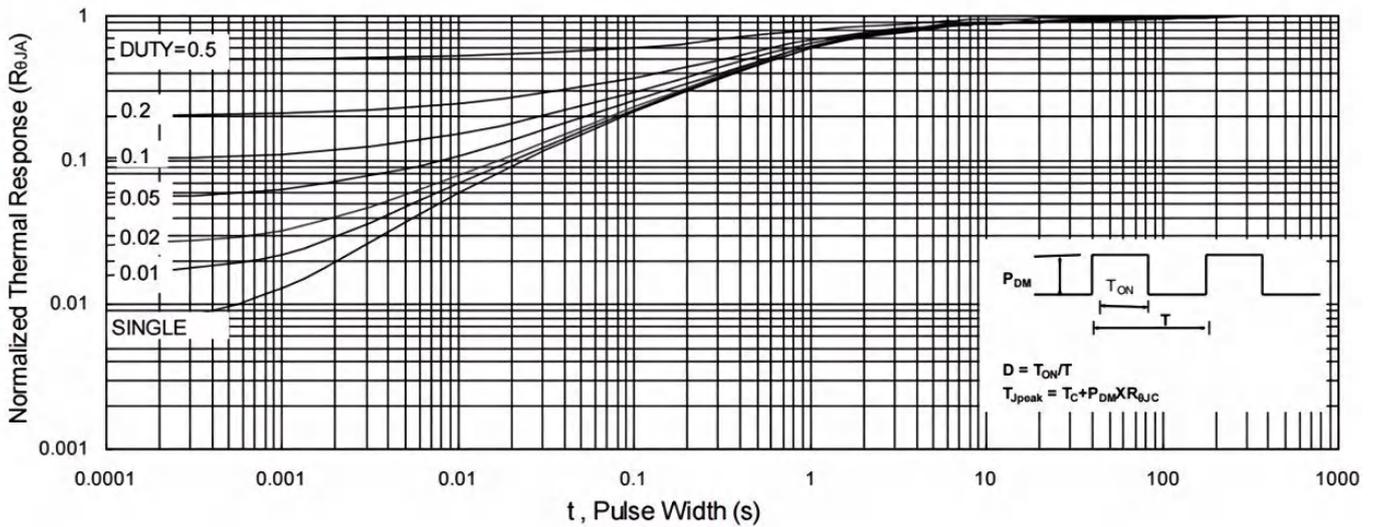


Fig.9 Normalized Maximum Transient Thermal Impedance

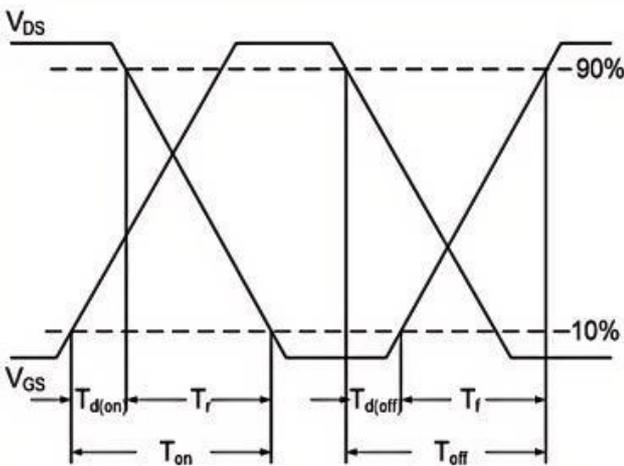


Fig.10 Switching Time Waveform

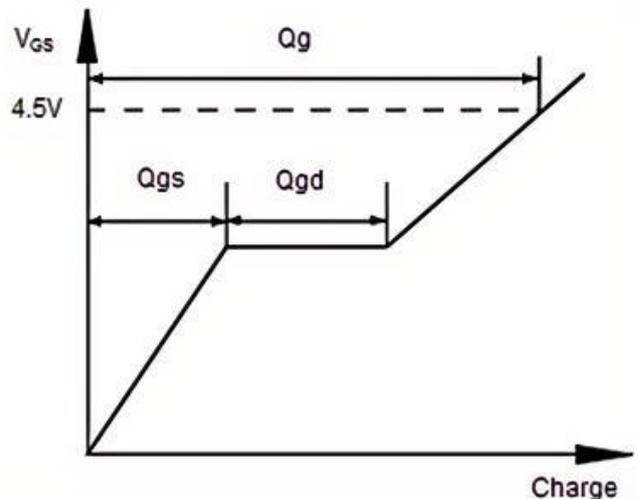
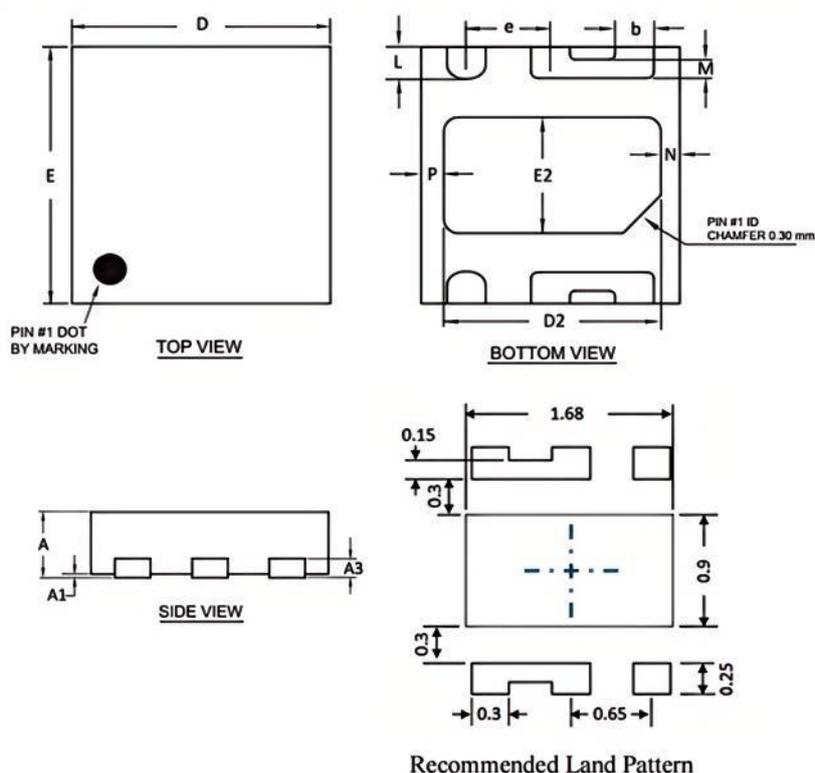


Fig.11 Gate Charge Waveform

Ordering Information

Part Number	Package code	Packaging
HSCB8236	DFN2*2-6L	3000/Tape&Reel

DFN2*2-6L Dual Package Outline



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		

HSCB8236 Marking:

