

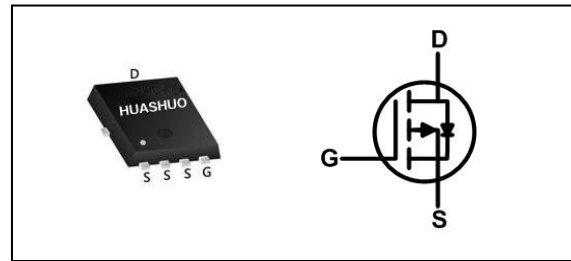
Description

The HSBA8119 is the high cell density trenched P-ch MOSFETs, which provide excellent RDS(ON) and gate charge for most of the synchronous buck converter applications. The HSBA8119 meet the RoHS and Green Product requirement, 100% EAS guaranteed with full function reliability approved.

- Super Low Gate Charge
- 100% EAS Guaranteed
- Green Device Available
- Excellent CdV/dt effect decline
- Advanced high cell density Trench technology

Product Summary

V_{DS}	-80	V
$R_{DS(ON),typ}$	12.5	m Ω
I_D	-70	A

PRPAK5*6 Pin Configuration

Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	-80	V
V_{GS}	Gate-Source Voltage	± 20	V
$I_D@T_C=25^\circ\text{C}$	Continuous Drain Current, $-V_{GS} @ -10V^1$	-70	A
$I_D@T_C=100^\circ\text{C}$	Continuous Drain Current, $-V_{GS} @ -10V^1$	-44	A
I_{DM}	Pulsed Drain Current ²	-270	A
EAS	Single Pulse Avalanche Energy ³	710	mJ
I_{AS}	Avalanche Current	63	A
$P_D@T_C=25^\circ\text{C}$	Total Power Dissipation ⁴	145	W
T_{STG}	Storage Temperature Range	-55 to 150	$^\circ\text{C}$
T_J	Operating Junction Temperature Range	-55 to 150	$^\circ\text{C}$

Thermal Data

Symbol	Parameter	Typ.	Max.	Unit
$R_{\theta JA}$	Thermal Resistance Junction-Ambient ¹	---	62	$^\circ\text{C/W}$
$R_{\theta JC}$	Thermal Resistance Junction-Case ¹	---	0.88	$^\circ\text{C/W}$



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	-80	---	---	V
R _{DS(ON)}	Static Drain-Source On-Resistance ²	V _{GS} =-10V , I _D =-20A	---	12.5	15	mΩ
		V _{GS} =-4.5V , I _D =-10A	---	14	17	
V _{GS(th)}	Gate Threshold Voltage	V _{GS} =V _{DS} , I _D =-250uA	-1.0	-1.8	-2.5	V
I _{DSS}	Drain-Source Leakage Current	V _{DS} =-80V , V _{GS} =0V , T _J =25°C	---	---	1	uA
		V _{DS} =-80V , V _{GS} =0V , T _J =55°C	---	---	10	
I _{GSS}	Gate-Source Leakage Current	V _{GS} = ± 20V , V _{DS} =0V	---	---	± 100	nA
R _g	Gate Resistance	V _{GS} =0V , V _{DS} =0V , f=1.0MHz	---	1.7	---	Ω
g _{fs}	Forward Transconductance	V _{DS} =-10V , I _D =-3A	---	30	---	S
Q _g	Total Gate Charge	V _{DS} =-40V , V _{GS} =-10V , I _D =-10A	---	190	---	nC
Q _{gs}	Gate-Source Charge		---	29	---	
Q _{gd}	Gate-Drain Charge		---	55	---	
T _{d(on)}	Turn-On Delay Time	V _{DD} =-40V , V _{GS} =-10V , R _G =6Ω , I _D =-10A	---	25	---	ns
T _r	Rise Time		---	20	---	
T _{d(off)}	Turn-Off Delay Time		---	180	---	
T _f	Fall Time		---	88	---	
C _{iss}	Input Capacitance	V _{DS} =-40V , V _{GS} =0V , f=1MHz	---	13300	---	pF
C _{oss}	Output Capacitance		---	390	---	
C _{rss}	Reverse Transfer Capacitance		---	50	---	

Diode Characteristics

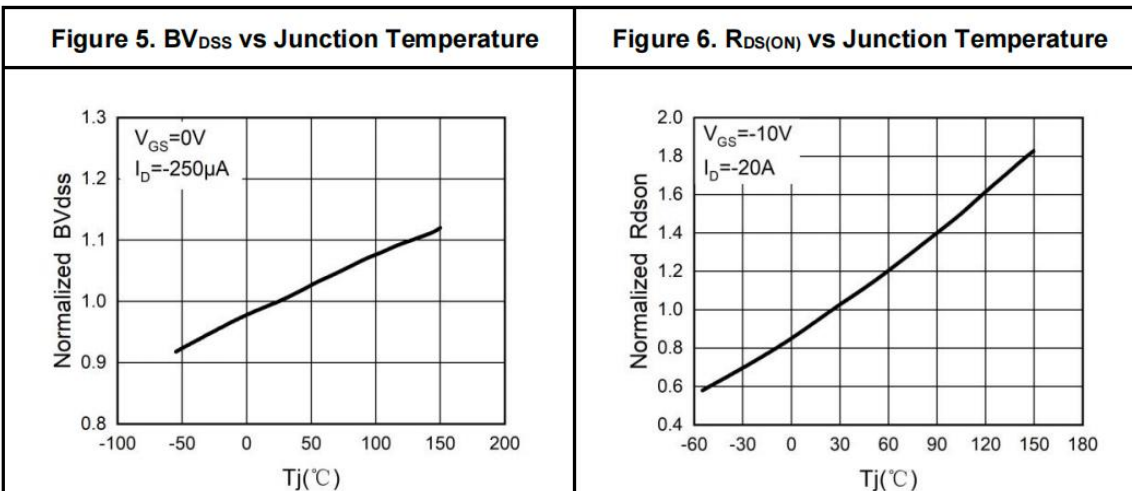
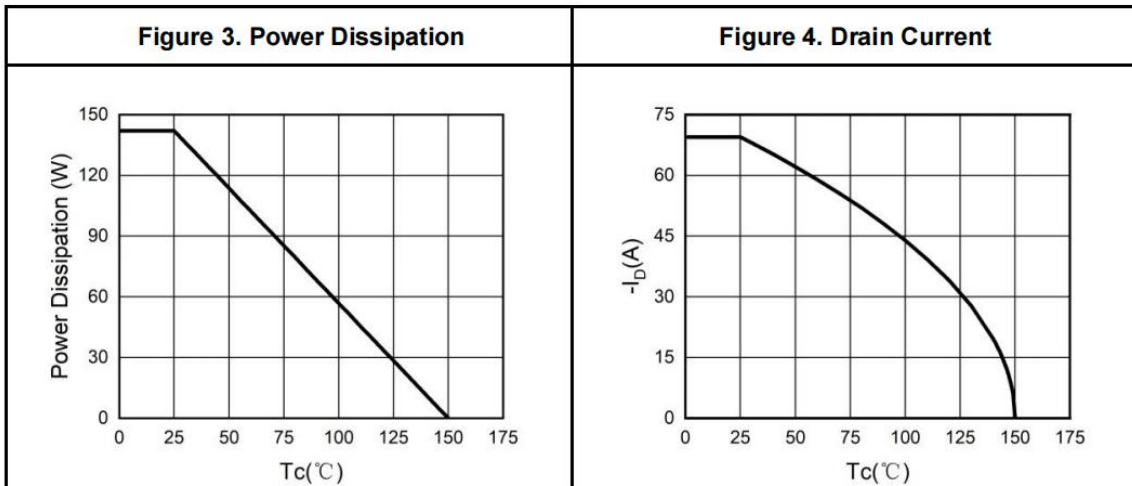
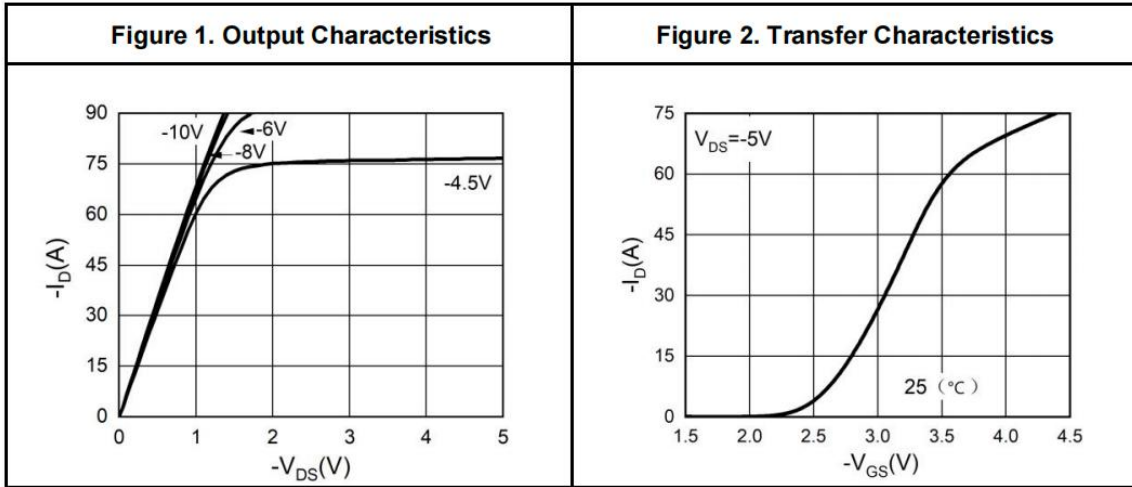
Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I _S	Continuous Source Current ^{1,5}	V _G =V _D =0V , Force Current	---	---	-70	A
I _{SM}	Pulsed Source Current ^{2,5}		---	---	-270	A
V _{SD}	Diode Forward Voltage ²	V _{GS} =0V , I _S =-1A , T _J =25°C	---	---	-1.2	V
T _{rr}	Reverse Recovery Time	I _F =-20A , di/dt=100A/μs	---	35	---	ns
Q _{rr}	Reverse Recovery Charge	I _F =-20A , di/dt=100A/μs	---	45	---	nC

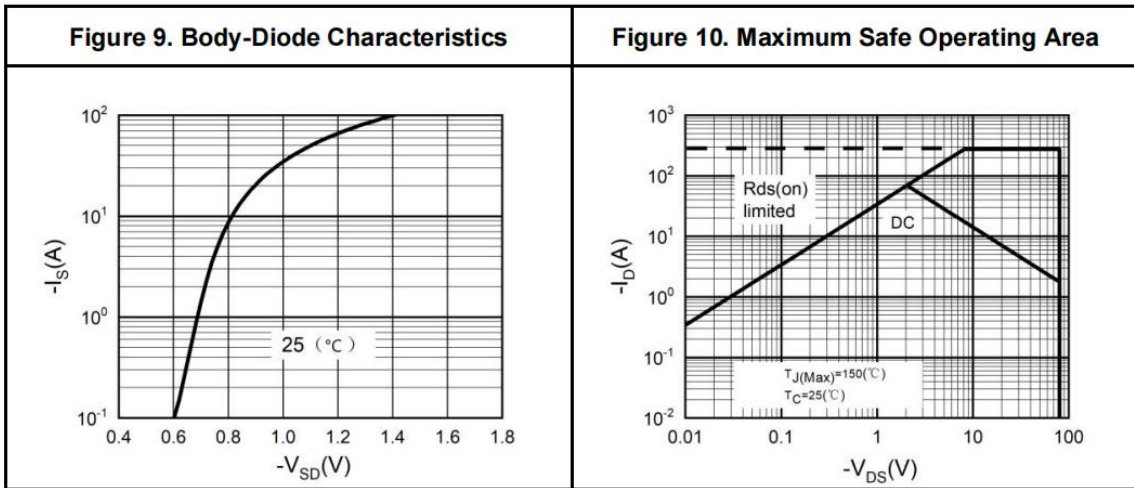
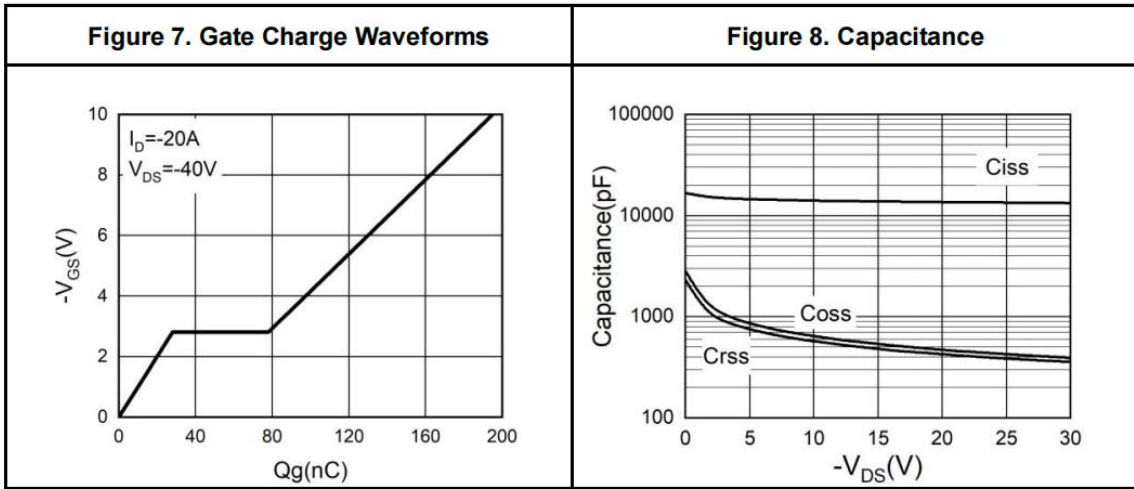
Note :

- 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 EAS data shows Max. rating . The test condition is V_{DD}=-50V,V_{GS}=-10V,L=0.1mH,R_G=25Ω,I_{AS}=-63A
- 4.The power dissipation is limited by 150°C junction temperature
- 5.The data is theoretically the same as I_D and I_{DM} , in real applications , should be limited by total power dissipation.



Typical Characteristics

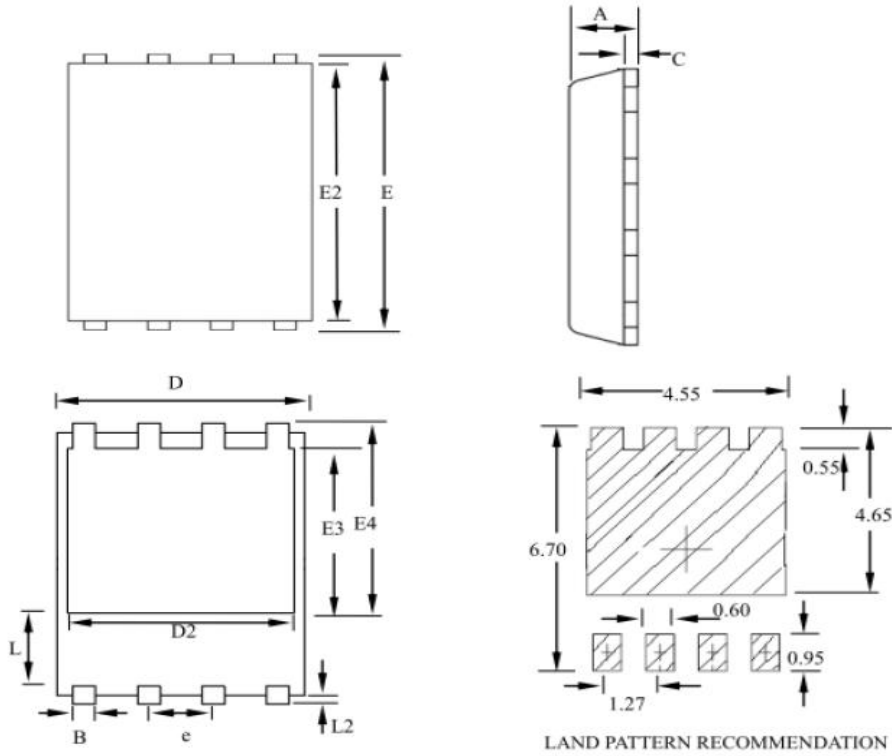






Ordering Information

Part Number	Package code	Packaging
HSBA8119	PRPAK5*6	3000/Tape&Reel



SYMBOLS	MILLIMETERS			INCHES		
	MIN	NOM	MAX	MIN	NOM	MAX
A	0.80	--	1.20	0.031	--	0.047
B	0.30	--	0.51	0.012	--	0.020
C	0.15	--	0.35	0.006	--	0.014
D	4.80	--	5.30	0.189	--	0.209
D2	3.61	--	4.35	0.142	--	0.171
E	5.90	--	6.35	0.232	--	0.250
E2	5.42	--	5.90	0.213	--	0.232
E3	3.23	--	3.90	0.127	--	0.154
E4	3.69	--	4.55	0.145	--	0.179
L	0.61	--	1.80	0.024	--	0.071
L2	0.05	--	0.36	0.002	--	0.014
e	--	1.27	--	--	0.050	--

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