

Features

- SGT MOS Technology
- 100% EAS Guaranteed
- Fast Switching Speed
- Green Device Available

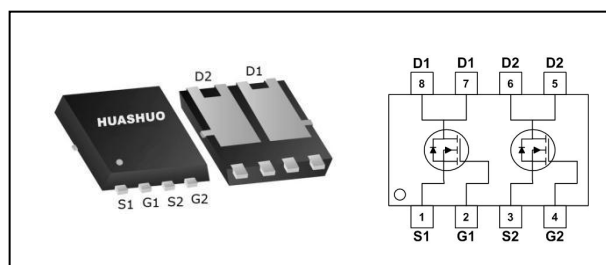
Product Summary

V_{DS}	100	V
$R_{DS(ON),typ}$	16.5	m Ω
I_D	30	A

Applications

- Battery Powered Systems.
- Portable Equipment.
- Hard Switching and High-Speed Circuit.

PRPAK5*6 Pin Configuration



Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	100	V
V_{GS}	Gate-Source Voltage	± 20	V
$I_D@T_C=25^{\circ}C$	Continuous Drain Current, $V_{GS} @ 10V^1$	30	A
$I_D@T_C=70^{\circ}C$	Continuous Drain Current, $V_{GS} @ 10V^1$	18.5	A
I_{DM}	Pulsed Drain Current ²	80	A
EAS	Single Pulse Avalanche Energy ³	45	mJ
I_{AS}	Avalanche Current	30	A
$P_D@T_C=25^{\circ}C$	Total Power Dissipation ⁴	30	W
T_{STG}	Storage Temperature Range	-55 to 150	$^{\circ}C$
T_J	Operating Junction Temperature Range	-55 to 150	$^{\circ}C$

Thermal Data

Symbol	Parameter	Typ.	Max.	Unit
$R_{\theta JA}$	Thermal Resistance Junction-ambient ¹	---	62	$^{\circ}C/W$
$R_{\theta JC}$	Thermal Resistance Junction-Case ¹	---	4.2	$^{\circ}C/W$

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	100	---	---	V
R _{DS(ON)}	Static Drain-Source On-Resistance ²	V _{GS} =10V, I _D =10A	---	16.5	20	mΩ
		V _{GS} =4.5V, I _D =10A	---	22	30	
V _{GS(th)}	Gate Threshold Voltage	V _{GS} =V _{DS} , I _D =250uA	1.2	1.8	2.2	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	---	---	5	
I _{GSS}	Gate-Source Leakage Current	V _{GS} =±20V, V _{DS} =0V	---	---	±100	nA
R _g	Gate Resistance	V _{DS} =0V, V _{GS} =0V, f=1MHz	---	0.8	---	Ω
Q _g	Total Gate Charge (4.5V)	V _{DS} =50V, V _{GS} =10V, I _D =10A	---	18	---	nC
Q _{gs}	Gate-Source Charge		---	2.9	---	
Q _{gd}	Gate-Drain Charge		---	5.2	---	
T _{d(on)}	Turn-On Delay Time	V _{DD} =30V, V _{GS} =10V, R _G =6Ω I _D =1A	---	13	---	ns
T _r	Rise Time		---	6	---	
T _{d(off)}	Turn-Off Delay Time		---	29	---	
T _f	Fall Time		---	30	---	
C _{iss}	Input Capacitance	V _{DS} =50V, V _{GS} =0V, f=1MHz	---	851	---	pF
C _{oss}	Output Capacitance		---	165	---	
C _{rss}	Reverse Transfer Capacitance		---	8	---	

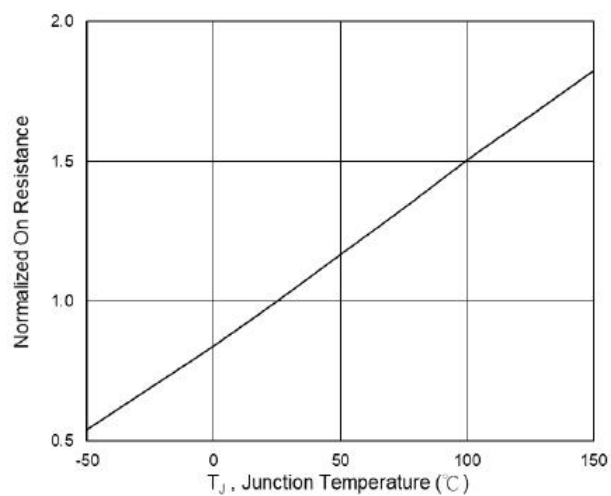
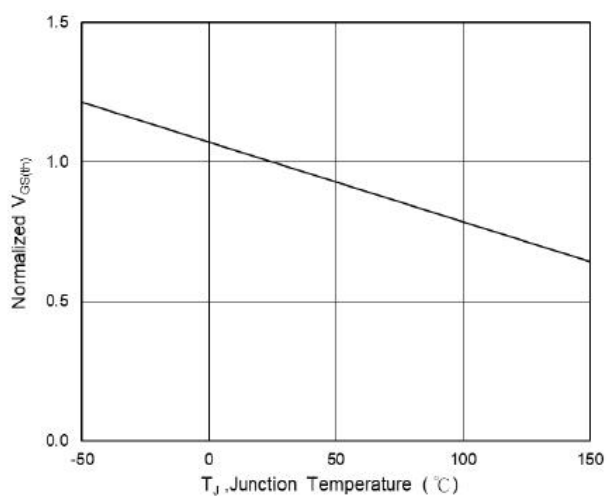
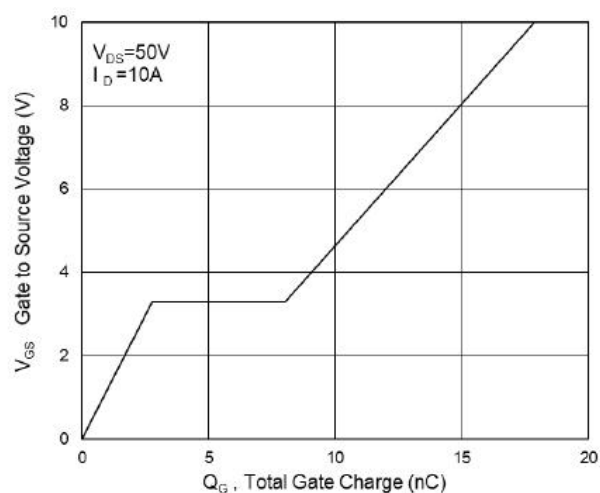
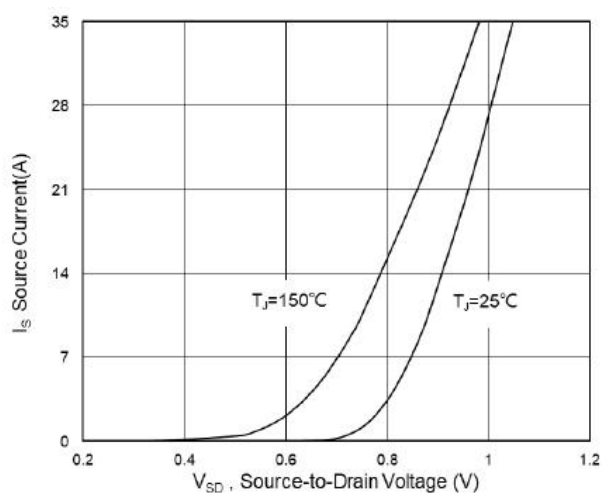
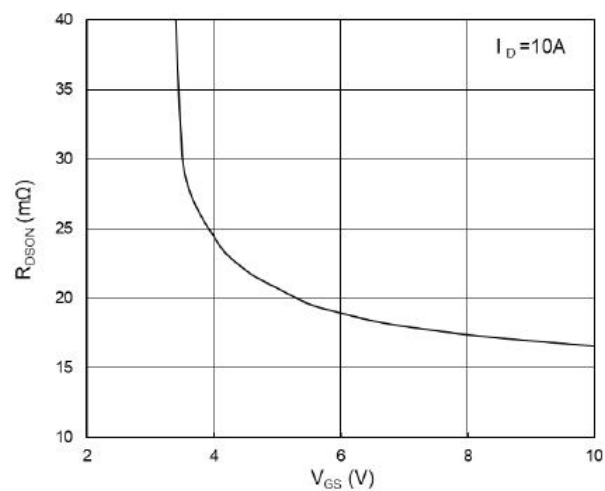
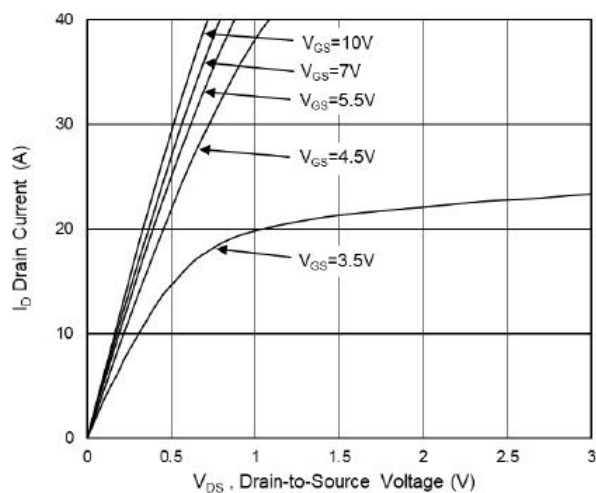
Diode Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I _S	Continuous Source Current ^{1,5}	V _G =V _D =0V, Force Current	---	---	30	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 EAS data shows Max. rating . The test condition is V_{DD}=25V, V_{GS}=10V, L=0.1mH, I_{AS}=30A
- 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



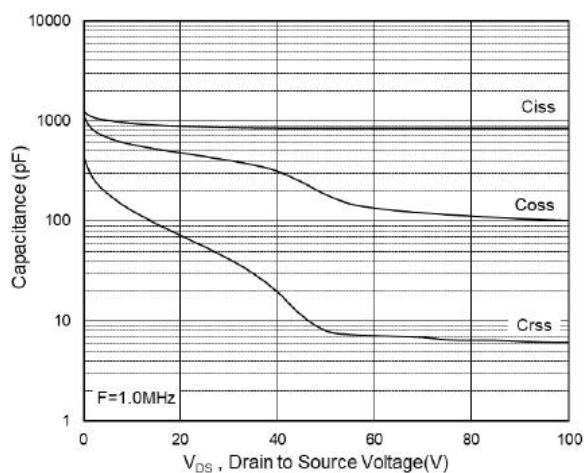


Fig.7 Capacitance

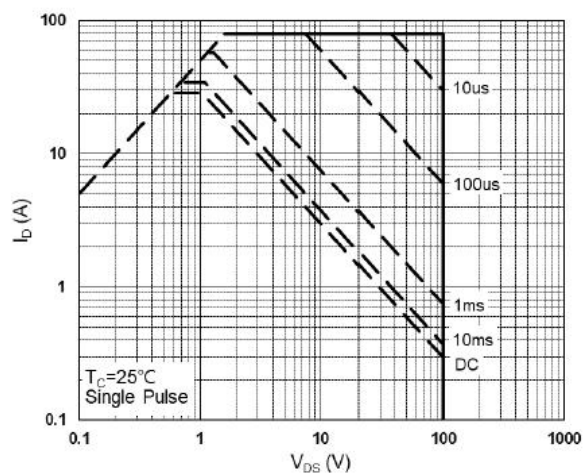


Fig.8 Safe Operating Area

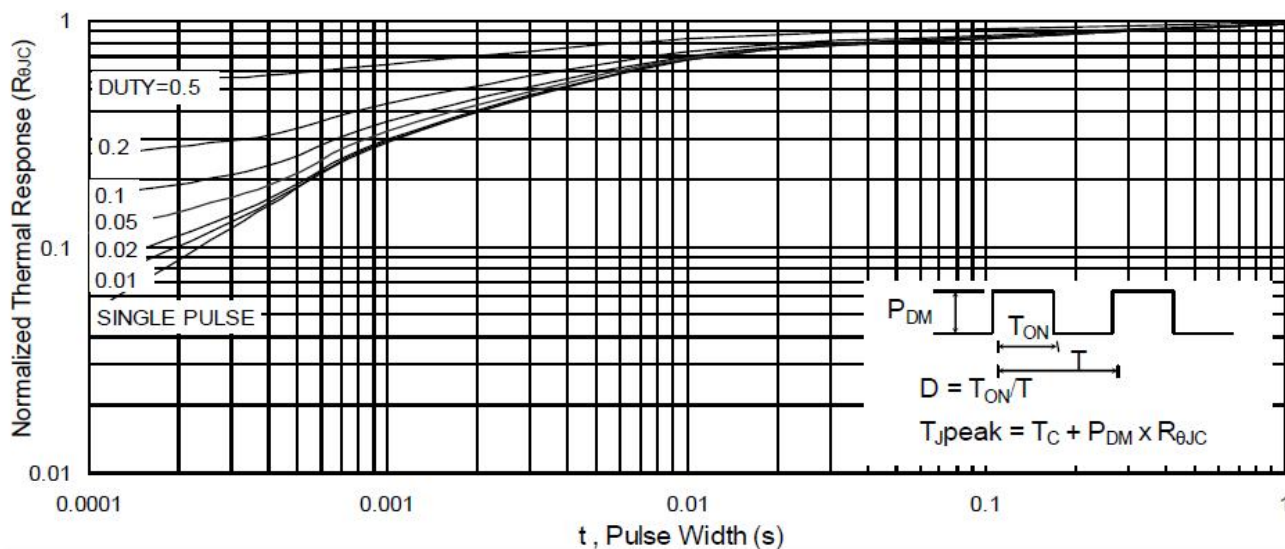


Fig.9 Normalized Maximum Transient Thermal Impedance

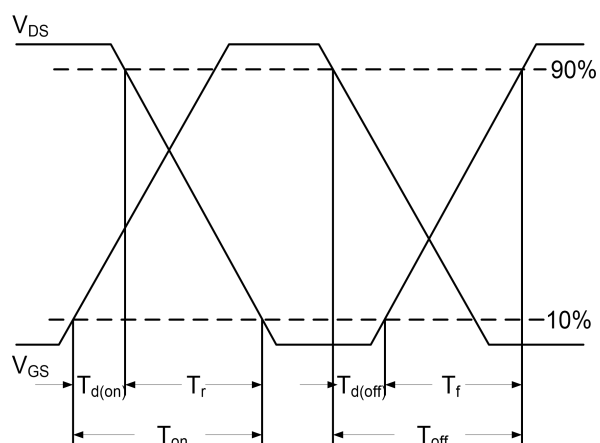


Fig.10 Switching Time Waveform

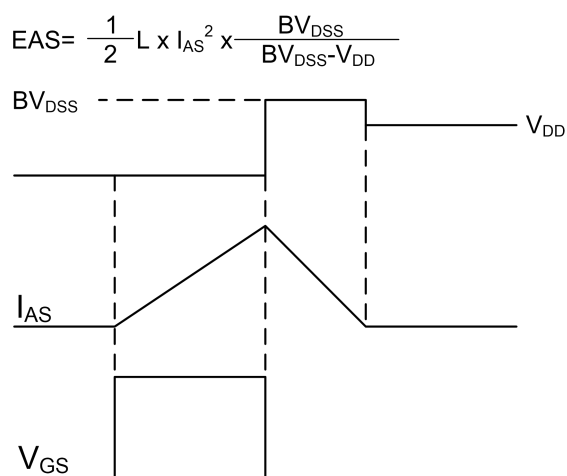
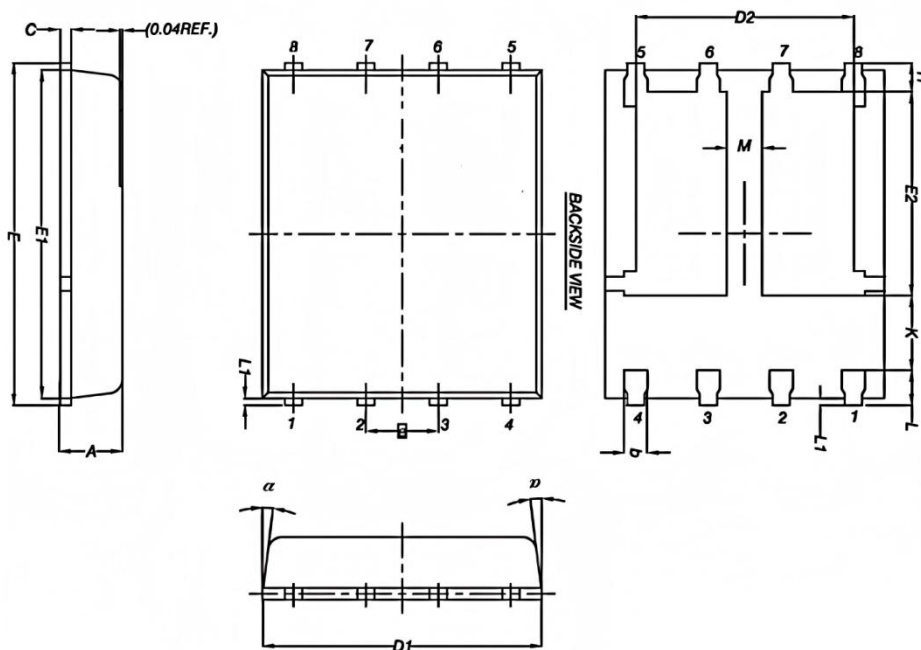


Fig.11 Unclamped Inductive Switching Waveform

Ordering Information

Part Number	Package code	Packaging
HSBA0256	PRPAK5*6	3000/Tape&Reel

PRPAK5*6 Dual EP2 Package Outline



SYMBOLS	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	0.90	1.17	0.035	0.046
b	0.33	0.51	0.013	0.020
C	0.20	0.30	0.008	0.012
D1	4.80	5.20	0.189	0.205
D2	3.61	3.96	0.142	0.156
E	5.90	6.15	0.232	0.242
E1	5.70	5.85	0.224	0.230
E2	3.30	3.78	0.130	0.149
e	1.27 BSC		0.05 BSC	
H	0.38	0.61	0.015	0.024
K	1.10	---	0.043	---
L	0.38	0.61	0.015	0.024
L1	0.05	0.25	0.002	0.010
M	0.50	---	0.020	---
α	0°	12°	0°	12°

HSBA0256 Marking:

