

General Description

- Advanced SGT MOS Technology
- Low Gate Charge
- Low $R_{DS(ON)}$
- 100% EAS Guaranteed
- Green Device Available

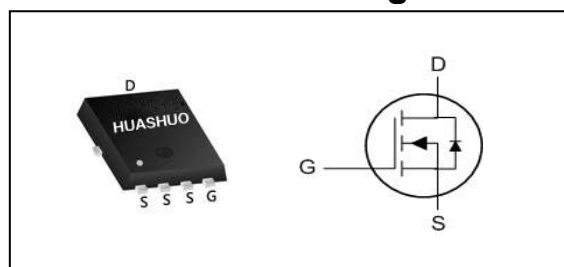
Product Summary

V_{DS}	60	V
$R_{DS(ON),typ}$	5.5	m Ω
I_D	70	A

Applications

- Motor Control.
- DC/DC Converter.
- Synchronous rectifier applications.

PRPAK 3X3 Pin Configuration



Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	60	V
V_{GS}	Gate-Source Voltage	± 20	V
$I_D@T_C=25^{\circ}C$	Continuous Drain Current	70	A
$I_D@T_C=100^{\circ}C$	Continuous Drain Current	46	A
I_{DM}	Pulsed Drain Current ¹	280	A
EAS	Single Pulse Avalanche Energy ²	240	mJ
$P_D@T_C=25^{\circ}C$	Total Power Dissipation	68	W
$P_D@T_C=100^{\circ}C$	Total Power Dissipation	25	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
$R_{\theta JC}$	Thermal Resistance Junction-Case	---	1.75	$^{\circ}C/W$

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

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
BV_{DSS}	Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D=250\mu A$	60	---	---	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance	$V_{GS}=10V, I_D=20A$	---	5.5	7.0	$m\Omega$
		$V_{GS}=4.5V, I_D=15A$	---	7.5	10	
$V_{GS(th)}$	Gate Threshold Voltage	$V_{GS}=V_{DS}, I_D=250\mu A$	1.0	1.8	2.5	V
I_{DSS}	Drain-Source Leakage Current	$V_{DS}=60V, V_{GS}=0V, T_J=25^\circ\text{C}$	---	---	1	μA
		$V_{DS}=60V, V_{GS}=0V, T_J=125^\circ\text{C}$	---	---	100	
I_{GSS}	Gate-Source Leakage Current	$V_{GS}=\pm 20V, V_{DS}=0V$	---	---	± 100	nA
R_g	Gate Resistance	$V_{DS}=0V, V_{GS}=0V, f=1\text{MHz}$	---	0.8	---	Ω
Q_g	Total Gate Charge	$V_{DS}=30V, V_{GS}=10V, I_D=20A$	---	36	---	nC
Q_{gs}	Gate-Source Charge		---	9	---	
Q_{gd}	Gate-Drain Charge		---	5.8	---	
$T_{d(on)}$	Turn-On Delay Time	$V_{DD}=30V, V_{GS}=10V, R_G=6\Omega, R_L=1.5\Omega$	---	16.3	---	ns
T_r	Rise Time		---	4	---	
$T_{d(off)}$	Turn-Off Delay Time		---	34.5	---	
T_f	Fall Time		---	6.3	---	
C_{iss}	Input Capacitance	$V_{DS}=30V, V_{GS}=0V, f=1\text{MHz}$	---	1930	---	pF
C_{oss}	Output Capacitance		---	465	---	
C_{rss}	Reverse Transfer Capacitance		---	35	---	

Diode Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I_S	Continuous Source Current	$V_G=V_D=0V$, Force Current	---	---	70	A
V_{SD}	Diode Forward Voltage ³	$V_{GS}=0V, I_S=20A, T_J=25^\circ\text{C}$	---	---	1.2	V
T_{rr}	Reverse Recovery Time	$I_F=20A, dI/dt=100A/\mu s, T_J=25^\circ\text{C}$	---	41.8	---	nS
Q_{rr}	Reverse Recovery Charge		---	53.3	---	nC

Note :

1.Repetitive Rating: Pulse width limited by maximum junction temperature.

2.EAS condition: $T_J=25^\circ\text{C}, V_{DD}=40V, V_G=10V, R_g=25\Omega, L=0.5\text{mH}$.

3.Repetitive Rating: Pulse width limited by maximum junction temperature.



Typical Characteristics

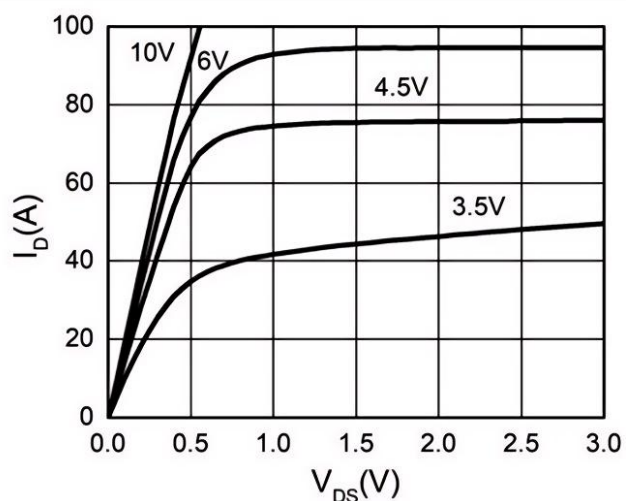


Fig.1 Typical Output Characteristics

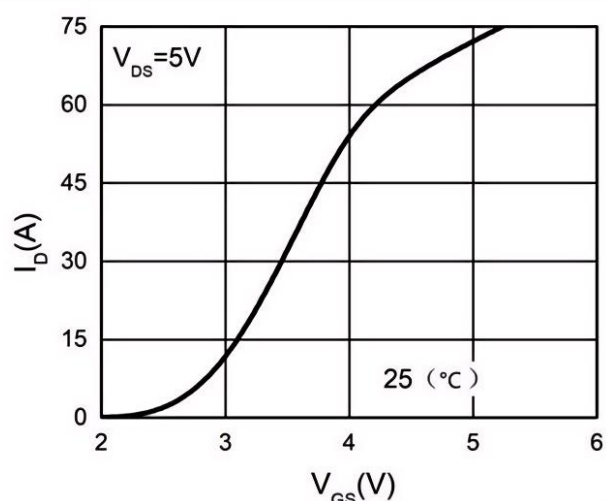


Fig.2 Transfer Characteristics

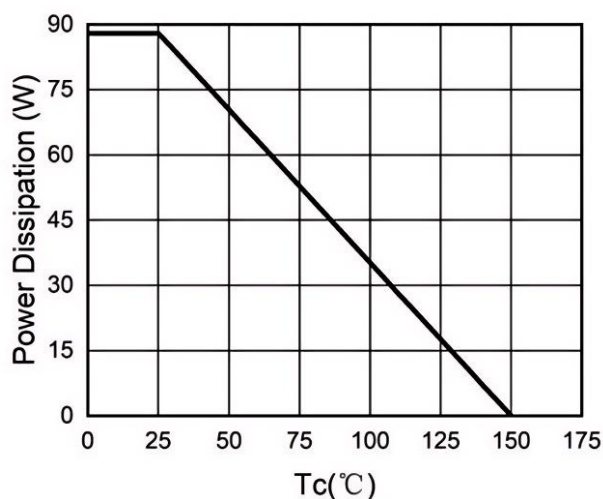


Fig.3 Power Dissipation

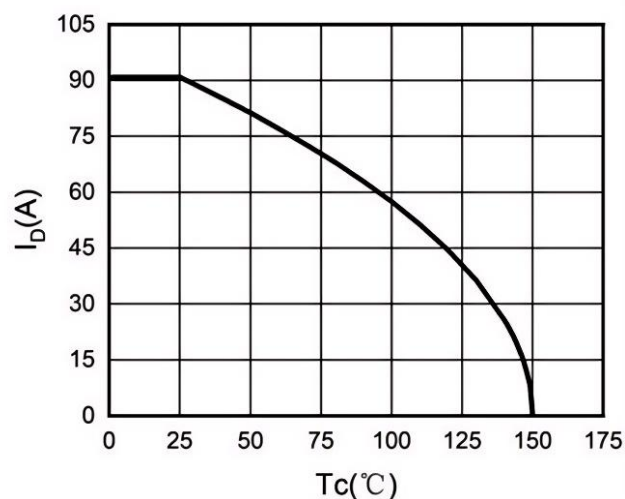


Fig.4 Drain Current

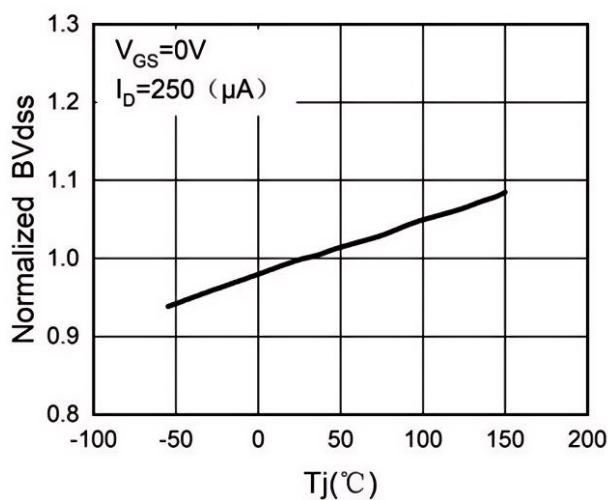


Fig.5 BV_DS vs Junction Temperature

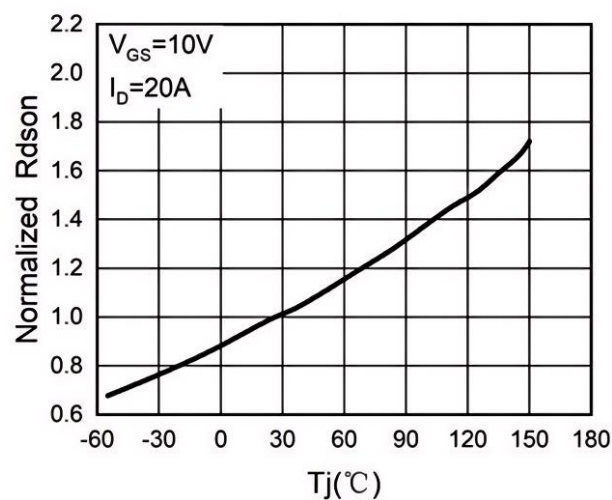


Fig.6 R_DS(ON) vs Junction Temperature



N-Ch 60V Fast Switching MOSFETs

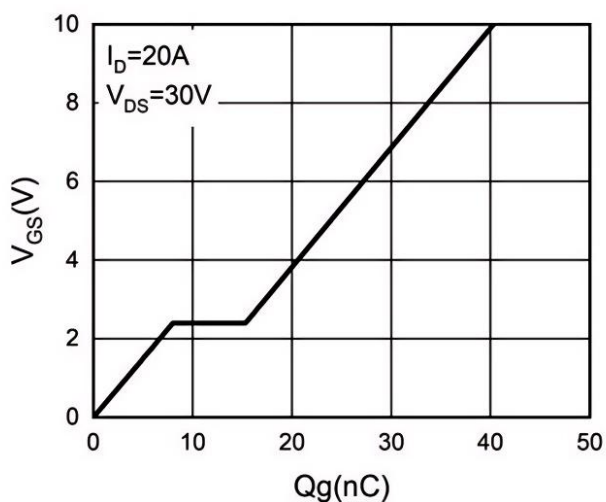


Fig.7 Gate Charge Waveforms

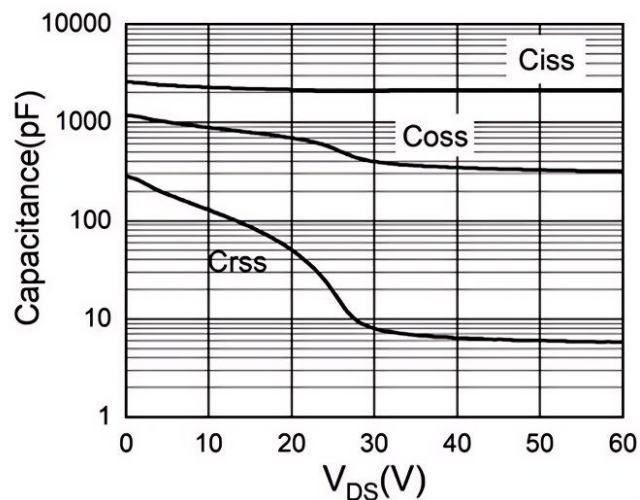


Fig.8 Capacitance

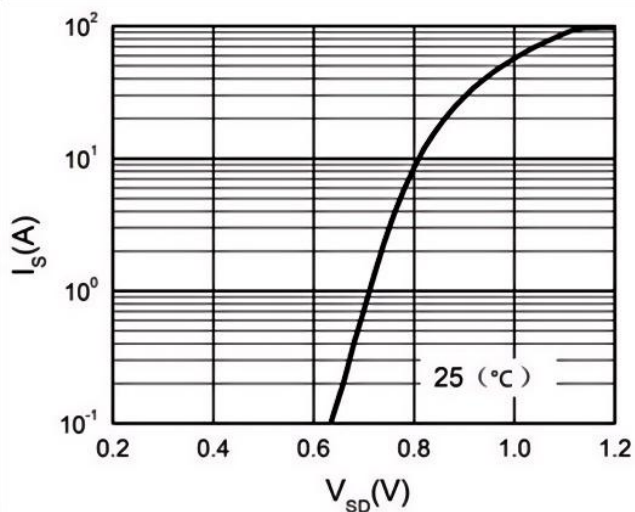


Fig.9 Body Diode Characteristics

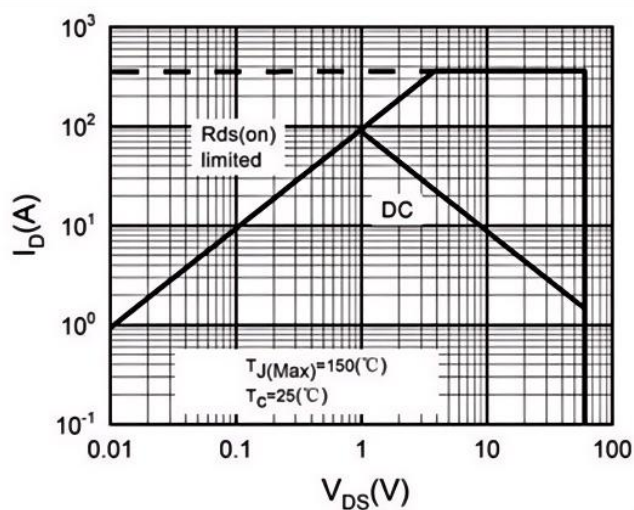


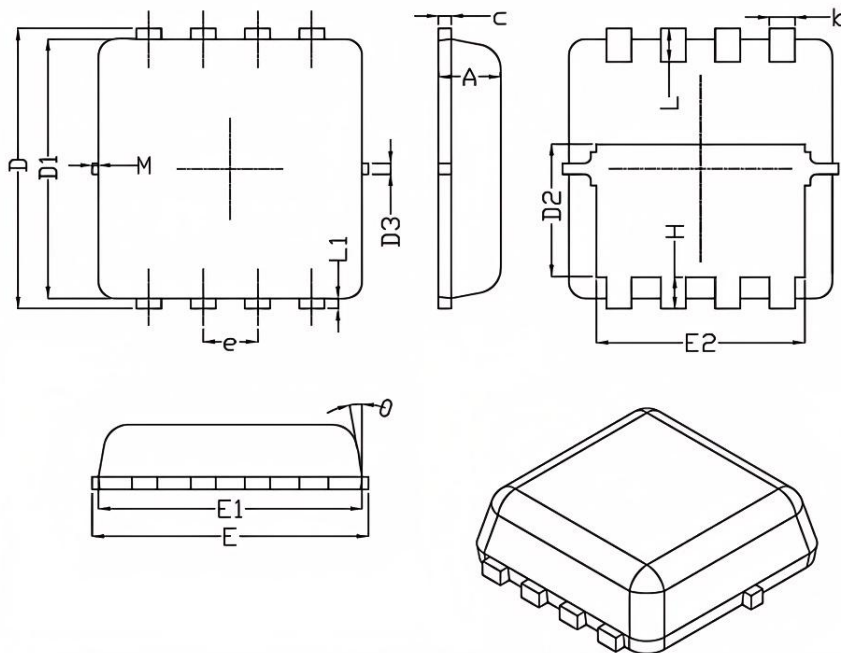
Fig.10 Maximum Safe Operating Area



Ordering Information

Part Number	Package code	Packaging
HSBB6064	PRPAK3*3	3000/Tape&Reel

PRPAK3*3(E) Single Package Outline



Symbol	Dimensions In Millimeters		
	Min.	Nom.	Max.
A	0.70	0.75	0.80
b	0.25	0.30	0.35
C	0.10	0.15	0.25
D	3.25	3.35	3.45
D1	3.00	3.10	3.20
D2	1.48	1.58	1.68
D3	-	0.13	-
E	3.15	3.30	3.45
E1	3.00	3.15	3.20
E2	2.39	2.49	2.59
e	0.65BSC		
H	0.30	0.39	0.50
L	0.30	0.40	0.50
L1	-	0.13	-
M	*	*	0.15
θ		10°	12°

HSBB6064 Marking:

