

General Description

We declare that the material of product compliance with Rohs requirements and

Halogen Free.

ESD protected

Low RDS(on)

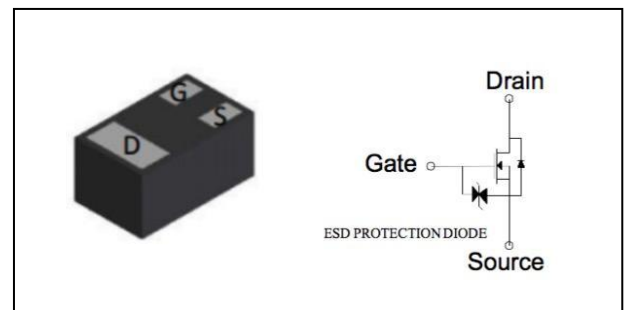
Product Summary

V_{DS}	60	V
$R_{DS(ON),typ}$	1.4	Ω
I_D	0.5	A

Applications

- Low side load switch
- Level shift circuitis
- DC-DC converter
- Portable applications i.e. DSC, PDA, Cell Phone, etc.

DFN1006-3 Pin Configuration



Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	60	V
V_{GS}	Gate-Source Voltage	± 20	V
$I_D@T_A=25^{\circ}C$	Continuous Drain Current, $V_{GS} @ 10V^1$	500	mA
$I_D@T_A=100^{\circ}C$	Continuous Drain Current, $V_{GS} @ 10V^1$	400	mA
I_{DM}	Pulsed Drain Current ²	1.5	A
$P_D@T_A=25^{\circ}C$	Total Power Dissipation ³	1.1	W
T_{STG}	Storage Temperature Range	-40 to 150	$^{\circ}C$
T_J	Operating Junction Temperature Range	-40 to 150	$^{\circ}C$

Thermal Data

Symbol	Parameter	Typ.	Max.	Unit
$R_{\theta JA}$	Thermal Resistance Junction-Ambient ⁴	---	115	$^{\circ}C/W$



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	60	---	---	V
R _{DS(ON)}	Static Drain-Source On-Resistance ²	V _{GS} =10V, I _D =300mA	---	1.4	2.6	Ω
		V _{GS} =4.5V, I _D =200mA	---	1.6	3.0	
V _{GS(th)}	Gate Threshold Voltage	V _{GS} =V _{DS} , I _D =250uA	1.0	1.6	2.0	V
I _{DSS}	Drain-Source Leakage Current	V _{DS} =60V, V _{GS} =0V, T _J =25°C	---	---	1	uA
I _{GSS}	Gate-Source Leakage Current	V _{GS} =±20V, V _{DS} =0V	---	---	±10	uA
Q _g	Total Gate Charge	V _{DS} =30V, V _{GS} =10V, I _D =200mA	---	0.85	---	nC
Q _{gs}	Gate-Source Charge		---	0.02	---	
Q _{gd}	Gate-Drain Charge		---	0.59	---	
T _{d(on)}	Turn-On Delay Time	V _{DD} =50V, V _{GS} =10V, I _D =200mA, RG=6Ω	---	7	---	ns
T _r	Rise Time		---	5	---	
T _{d(off)}	Turn-Off Delay Time		---	18	---	
T _f	Fall Time		---	23	---	
C _{iss}	Input Capacitance	V _{DS} =30V, V _{GS} =0V, f=1MHz	---	28	---	pF
C _{oss}	Output Capacitance		---	8.5	---	
C _{rss}	Reverse Transfer Capacitance		---	2	---	

Diode Characteristics

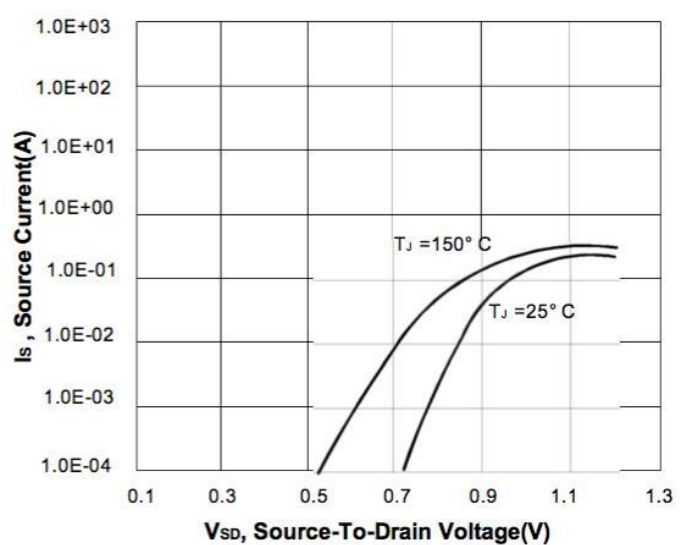
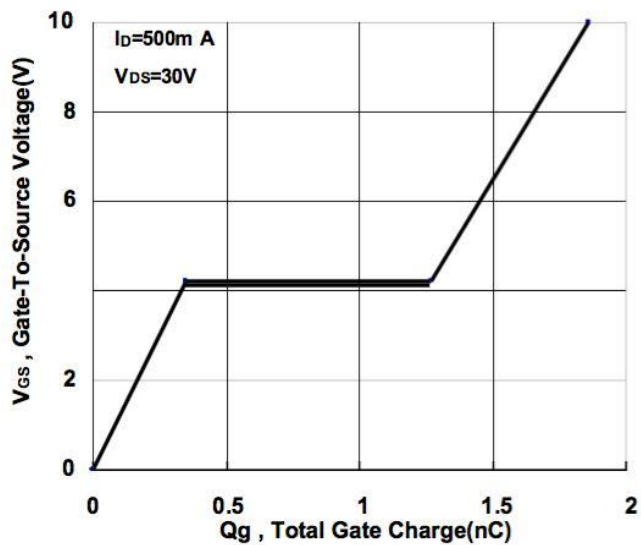
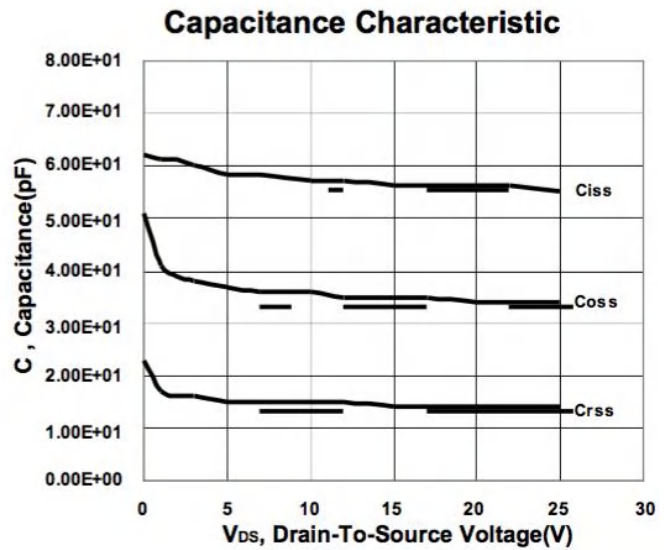
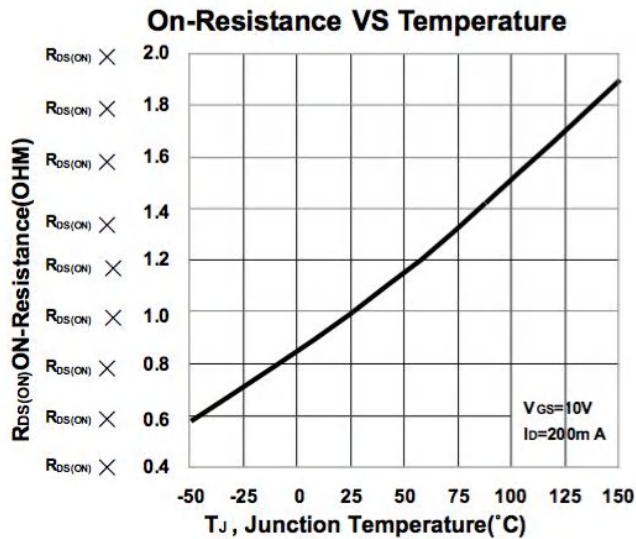
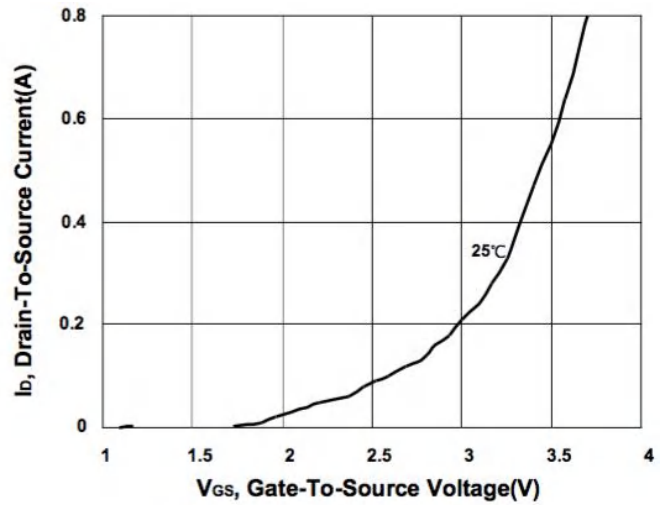
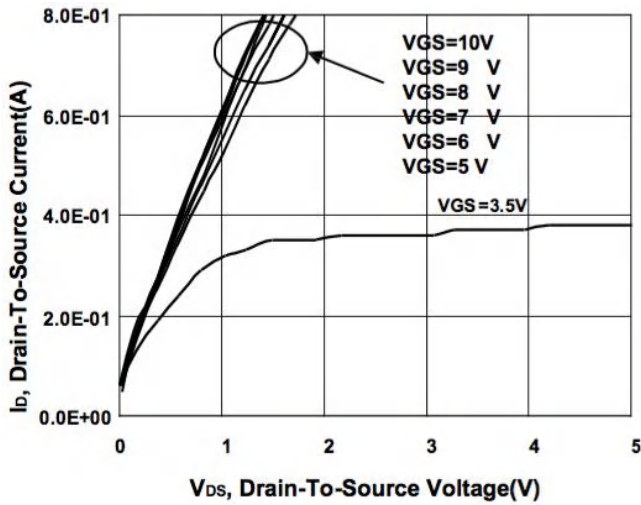
Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I _S	Continuous Source Current ^{1,4}	V _G =V _D =0V, Force Current	---	---	500	mA
I _{SM}	Pulsed Source Current ^{2,4}		---	---	1.5	A
V _{SD}	Diode Forward Voltage ²	V _{GS} =0V, I _S =200mA, T _J =25°C	---	---	1.2	V

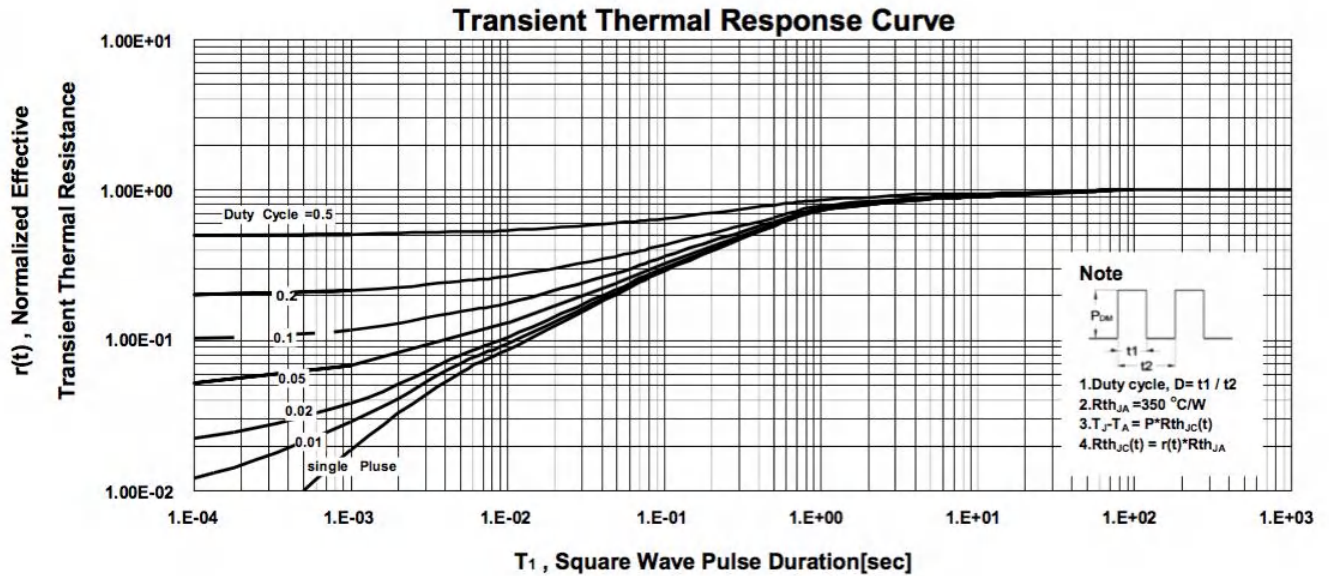
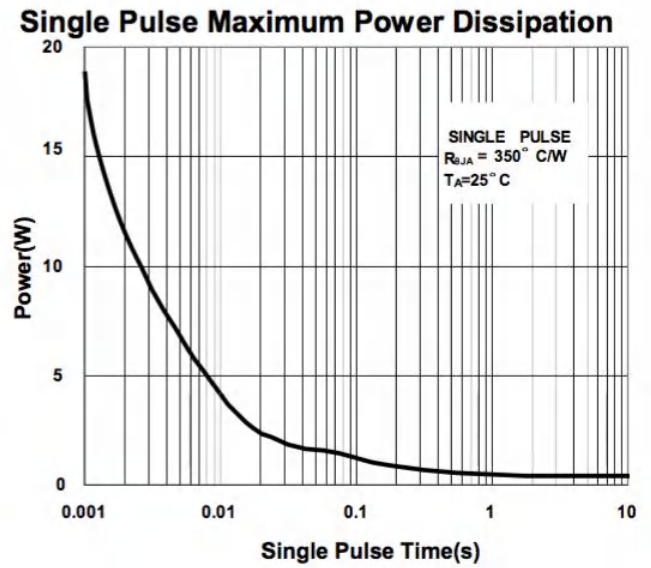
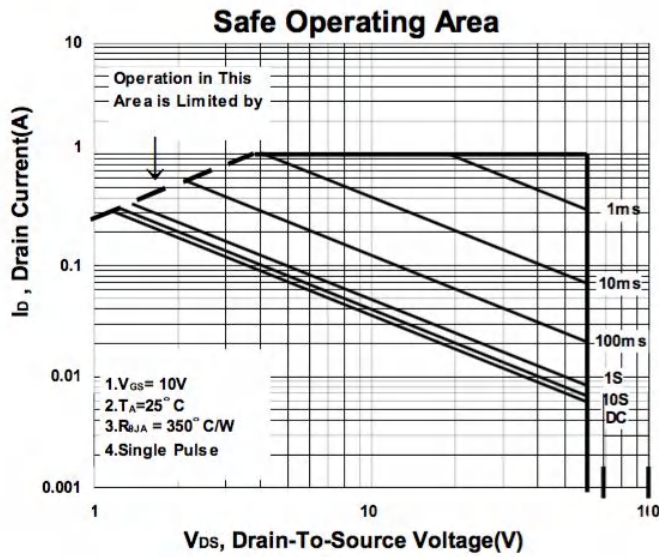
Note :

1. Computed continuous current assumes the condition of T_J_Max while the actual continuous current depends on the thermal & electro-mechanical application board design.
2. Repetitive Rating: Pulse width limited by maximum junction temperature(T_J_Max=150°C).
3. Pulse Test: Pulse Width ≤ 300μs, Duty Cycle ≤ 2%.
4. Device mounted on FR-4 substrate PC board, 2oz copper, with 1inch square copper pad layout



Typical Characteristics



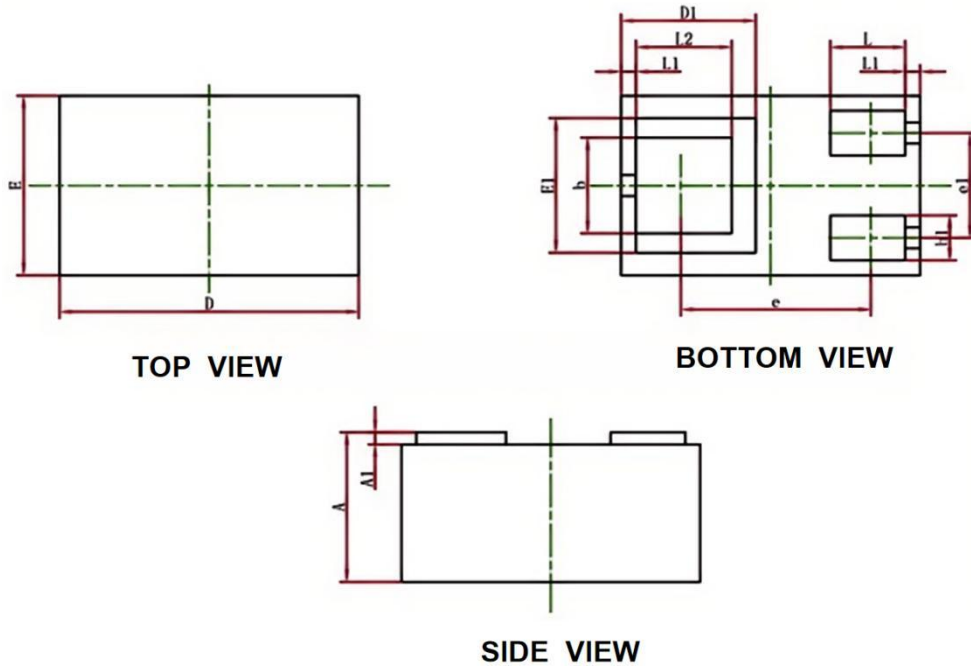




Ordering Information

Part Number	Package code	Packaging
HSBG2N7002K	DFN1006-3	10000/Tape&Reel

DFN1006-3 Package Outline



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.450	0.550	0.018	0.022
AL	0.010	0.100	0.000	0.004
D	0.950	1.050	0.037	0.041
E	0.550	0.650	0.022	0.026
D1	0.450REF.		0.0178REF.	
E1	0.450REF.		0.0178REF.	
b	0.270	0.370	0.011	0.015
bl	0.100	0.200	0.004	0.008
e	0.635REF.		0.025REF.	
el	0.300	0.400	0.012	0.016
L	0.200	0.300	0.008	0.012
L1	0.050REF.		0.002REF.	
L2	0.270	0.370	0.011	0.015



HSBG2N7002K Marking

