

General Description

The CH60N03SN combines advanced trench MOSFET technology with a low resistance package to provide extremely low $R_{DS(ON)}$. This device is ideal for load switch and battery protection applications.

Features

- Advance high cell density Trench technology
- Low $R_{DS(ON)}$ to minimize conductive loss
- Low Gate Charge for fast switching
- Dual DIE in one package

Application

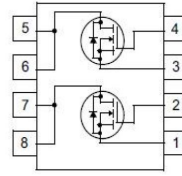
- Power Management in Notebook Computer,
- Portable Equipment and Battery Powered Systems

Ordering Information:

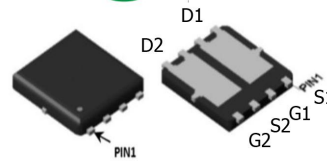
Part NO.	CH60N03SN
Marking	CH60N03SN
Packing Information	REEL TAPE
Basic ordering unit (pcs)	5000

Absolute Maximum Ratings (T_c =25°C)

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V _{DS}	30	V
Gate-Source Voltage	V _{GS}	±20	V
Continuous Drain Current	I _{D@TC=25°C}	40	A
	I _{D@TC=75°C}	23	A
	I _{D@TC=100°C}	19	A
Pulsed Drain Current ^①	I _{DM}	80	A
Total Power Dissipation(TC=25°C)	P _{D@TC=25°C}	22.7	W
Total Power Dissipation(TA=25°C)	P _{D@TA=25°C}	0.69	W
Operating Junction Temperature	T _J	-55 to 150	°C
Storage Temperature	T _{STG}	-55 to 150	°C
Single Pulse Avalanche Energy	E _{AS}	30	mJ

Product Summary


V_{DS1} =30V
 V_{DS2} =30V
 R_{DS(ON)1} =6.5mΩ
 R_{DS(ON)2} =6.5mΩ
 I_{D1} =40A
 I_{D2} =40A



PDFN3*3

•Thermal resistance

Parameter	Symbol	Min.	Typ.	Max.	Unit
Thermal resistance, junction - case	R _{thJC}	-	-	2.5	° C/W
Thermal resistance, junction - ambient	R _{thJA}	-	-	70	° C/W
Soldering temperature, wavesoldering for 10s	T _{sold}	-	-	265	° C

•Electronic Characteristics

Parameter	Symbol	Condition	Min.	Typ	Max.	Unit
Drain-Source Breakdown Voltage	BV _{DSS}	V _{GS} =0V, I _D =250uA	30			V
Gate Threshold Voltage	V _{GS(TH)}	V _{GS} =V _{DS} , I _D =250uA	1.0	1.5	3.0	V
Drain-Source Leakage Current	I _{DSS}	V _{DS} =30V, V _{GS} =0V			1.0	uA
Gate- Source Leakage Current	I _{GSS}	V _{GS} =±20V, V _{DS} =0V			±100	nA
Static Drain-source On Resistance	R _{DS(ON)}	V _{GS} =10V, I _D =20A		6.5	8	mΩ
		V _{GS} =4.5V, I _D =10A		9	14	mΩ
Forward Transconductance	g _{FS}	V _{DS} =25V, I _D =10A		19		s
Source-drain voltage	VSD	I _S =10A			1.20	V

•Electronic Characteristics

Parameter	Symbol	Condition	Min.	Typ	Max.	Unit
Input capacitance	C _{iss}	f = 1MHz	-	1051	-	pF
Output capacitance	C _{oss}		-	144	-	
Reverse transfer capacitance	C _{rss}		-	121	-	

•Gate Charge characteristics(T_a = 25°C)

Parameter	Symbol	Condition	Min.	Typ	Max.	Unit
Total gate charge	Q _g	VDD = 25V	-	21.5	-	nC
Gate - Source charge	Q _{gs}	I _D = 5A	-	4	-	
Gate - Drain charge	Q _{gd}	VGS = 10V	-	6	-	

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

Notes 2.E_{AS} condition: T_J=25°C, V_{DD}=15V, V_G=10V, R_G=25Ω, L=0.5mH.

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

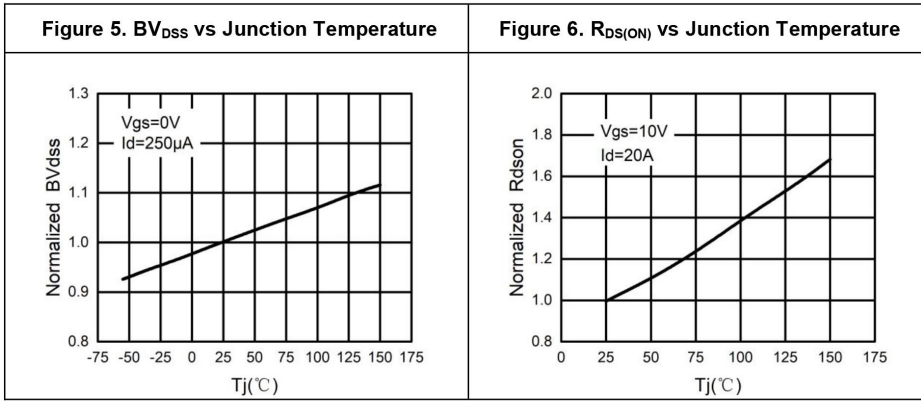
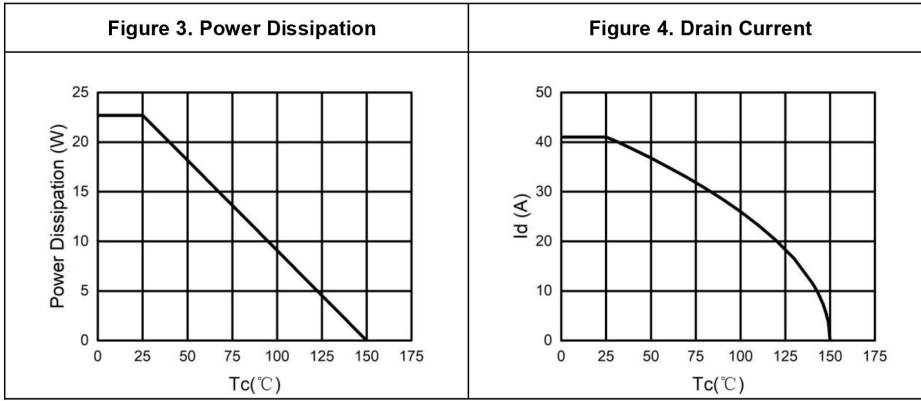
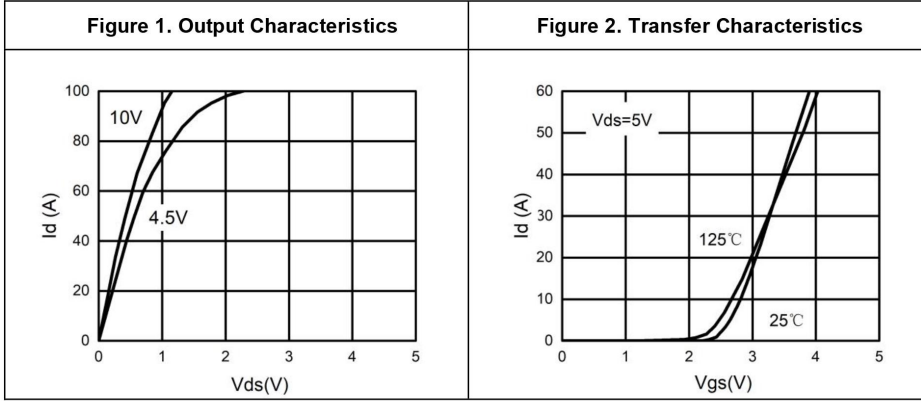
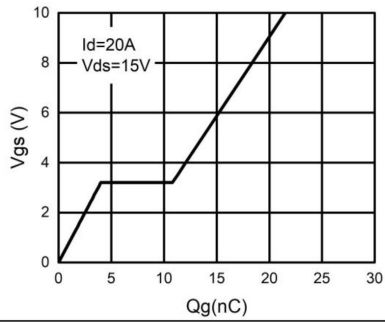
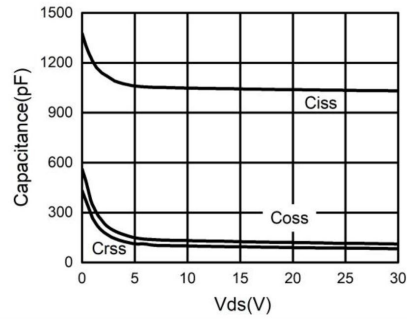
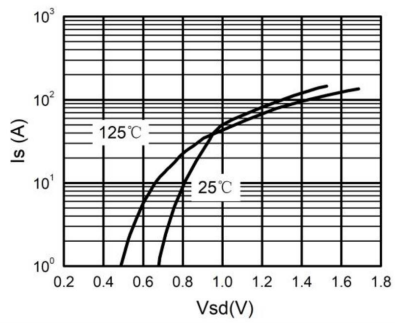
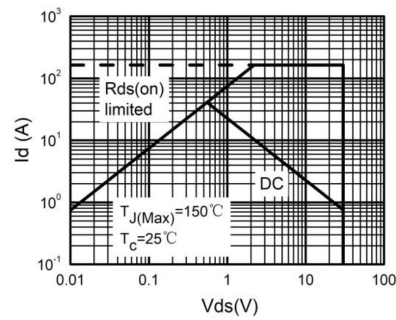
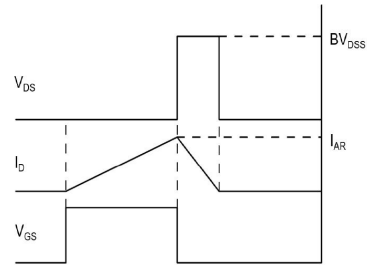
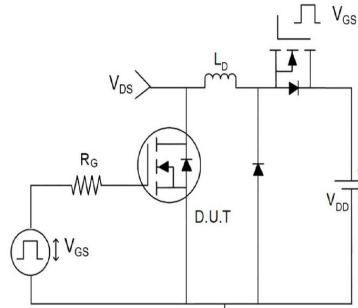
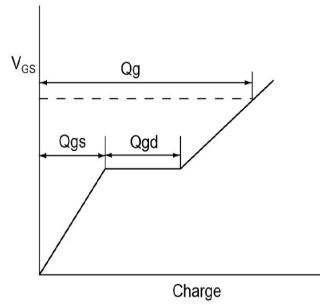
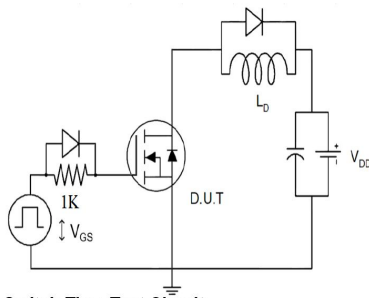
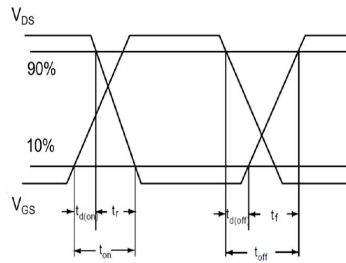
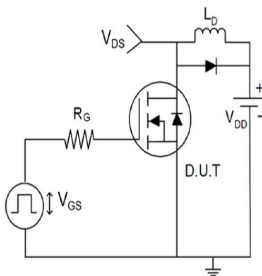
Typical Electrical And Thermal Characteristics (Curves)


Figure 7. Gate Charge Waveforms

Figure 8. Capacitance

Figure 9. Body-Diode Characteristics

Figure 10. Maximum Safe Operating Area


Test Circuit
1) E_{AS} Test Circuits

2) Gate Charge Test Circuit

3) Switch Time Test Circuit


•Dimensions(DFN3*3)

Unit: mm

<i>A</i>	0.70	0.75	0.80
<i>b</i>	0.25	0.30	0.35
<i>c</i>	0.10	0.15	0.25
<i>D</i>	3.25	3.35	3.45
<i>D1</i>	3.00	3.10	3.20
<i>D2</i>	1.78	1.88	1.98
<i>D3</i>	---	0.13	---
<i>E</i>	3.20	3.30	3.40
<i>E1</i>	3.00	3.15	3.20
<i>E2</i>	2.39	2.49	2.59
<i>e</i>	0.65BSC		
<i>H</i>	0.30	0.39	0.50
<i>L</i>	0.30	0.40	0.50
<i>L1</i>	---	0.13	---
<i>K</i>	0.30	---	---
θ	---	10°	12°
<i>M</i>	*	*	0.15

