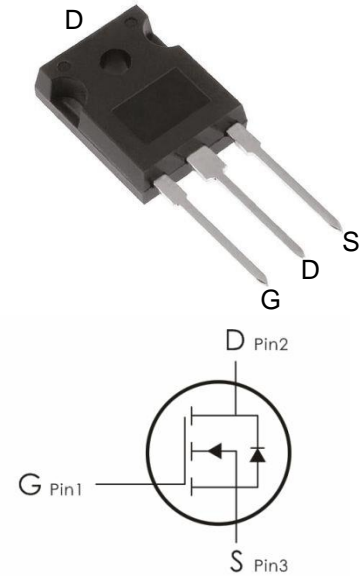


## Description:

This N-Channel MOSFET uses advanced SGT technology and design to provide excellent  $R_{DS(on)}$  with low gate charge. It can be used in a wide variety of applications.

## Features:

- 1)  $V_{DS}=100V, I_D=350A, R_{DS(ON)}<2.2m\ \Omega @V_{GS}=10V$
- 2) Low gate charge.
- 3) Green device available.
- 4) Advanced high cell density trench technology for ultra low  $R_{DS(ON)}$ .
- 5) Excellent package for good heat dissipation.



## Package Marking and Ordering Information:

Part NO.	Marking	Package	Packing
GH2R2TG	H2R2T	TO- 247S	30 pcs/Tube

## Absolute Maximum Ratings: ( $T_C=25^\circ C$ unless otherwise noted)

Symbol	Parameter	Ratings	Units
$V_{DS}$	Drain-Source Voltage	100	V
$V_{GS}$	Gate-Source Voltage	$\pm 20$	V
$I_D$	Continuous Drain Current	350	A
	Continuous Drain Current- $T_C=100^\circ C$	223	
$I_{DM}$	Pulsed Drain Current <sup>2</sup>	615	
$P_D$	Power Dissipation	416	W
$E_{AS}$	Single pulse avalanche energy <sup>3</sup>	1838	mJ
$T_J, T_{STG}$	Operating and Storage Junction Temperature Range	-55-+150	$^\circ C$

## Thermal Characteristics:

Symbol	Parameter	Max	Units
$R_{\theta JC}$	Thermal Resistance, Junction to Case	0.4	$^\circ C/W$
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient	59	$^\circ C/W$

## Electrical Characteristics: (T<sub>C</sub>=25°C unless otherwise noted)

Symbol	Parameter	Conditions	Min	Typ	Max	Units
<b>Off Characteristics</b>						
<b>BV<sub>DSS</sub></b>	Drain-Source Breakdown Voltage	V <sub>GS</sub> =0V, I <sub>D</sub> =250 μA	100	---	---	V
<b>I<sub>DSS</sub></b>	Zero Gate Voltage Drain Current	V <sub>GS</sub> =0V, V <sub>DS</sub> =80V	---	---	10	μA
<b>I<sub>GSS</sub></b>	Gate-Source Leakage Current	V <sub>GS</sub> =±20V, V <sub>DS</sub> =0A	---	---	±100	nA
<b>On Characteristics</b>						
<b>V<sub>GS(th)</sub></b>	GATE-Source Threshold Voltage	V <sub>GS</sub> =V <sub>DS</sub> , I <sub>D</sub> =250 μA	2	3	4	V
<b>R<sub>DS(ON)</sub></b>	Drain-Source On Resistance	V <sub>GS</sub> =10V, I <sub>D</sub> =20A	---	1.9	2.2	mΩ
<b>Dynamic Characteristics</b>						
<b>C<sub>iss</sub></b>	Input Capacitance <sup>5</sup>	V <sub>DS</sub> =50V, V <sub>GS</sub> =0V, f=1MHz	---	13488	---	pF
<b>C<sub>oss</sub></b>	Output Capacitance <sup>5</sup>		---	2165	--	
<b>C<sub>rss</sub></b>	Reverse Transfer Capacitance <sup>5</sup>		---	36	---	
<b>Switching Characteristics</b>						
<b>t<sub>d(on)</sub></b>	Turn-On Delay Time <sup>5</sup>	V <sub>DS</sub> =50V, R <sub>ENG</sub> =3 Ω, V <sub>GS</sub> =10V	---	40	---	ns
<b>t<sub>r</sub></b>	Rise Time <sup>5</sup>		---	61	---	ns
<b>t<sub>d(off)</sub></b>	Turn-Off Delay Time <sup>5</sup>		---	132	---	ns
<b>t<sub>f</sub></b>	Fall Time <sup>5</sup>		---	74	---	ns
<b>Q<sub>g</sub></b>	Total Gate Charge <sup>5</sup>	V <sub>GS</sub> =10V, V <sub>DS</sub> =50V, I <sub>D</sub> =20A	---	185	---	nC
<b>Q<sub>gs</sub></b>	Gate-Source Charge <sup>5</sup>		---	117	---	nC
<b>Q<sub>gd</sub></b>	Gate-Drain "Miller" Charge <sup>5</sup>		---	59	---	nC
<b>Drain-Source Diode Characteristics<sup>35</sup></b>						
<b>V<sub>SD</sub></b>	Diode Forward Voltage	V <sub>GS</sub> =0V, I <sub>SD</sub> =1A	---	0.66	1	V
<b>I<sub>S</sub></b>	Continuous Drain Current	V <sub>D</sub> =V <sub>G</sub> =0V	---	---	350	A
<b>I<sub>SM</sub></b>	Pulsed Drain Current		---	---	615	A
<b>T<sub>rr</sub></b>	Reverse Recovery Time	I <sub>F</sub> =20A, T <sub>J</sub> =25°C	---	115	---	ns
<b>Q<sub>rr</sub></b>	Reverse Recovery Charge	di/dt=100A/us	---	333	---	nC

### Notes:

- 1, L=20.8mH, IAS=3A, VDD=50V, RG=25Ω, Starting T<sub>J</sub> =25°C
- 2, Repetitive Rating : Pulse width limited by maximum junction temperature
- 3, Pulse Test : Pulse Width ≤ 300μs, Duty Cycle ≤ 2%
- 4, Essentially Independent of Operating Temperature

### Typical Characteristics: (T<sub>c</sub>=25°C unless otherwise noted)

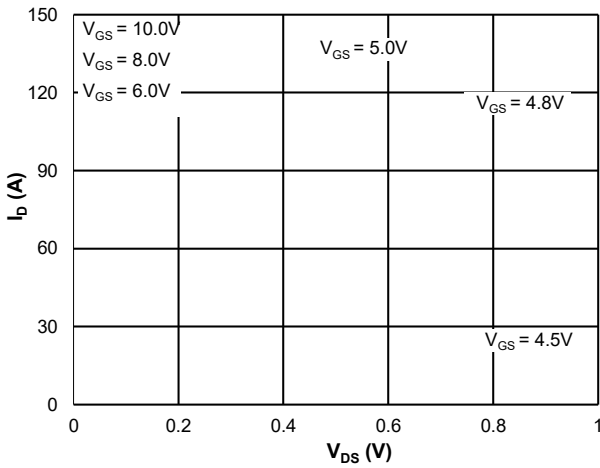


Figure 1: Saturation Characteristics

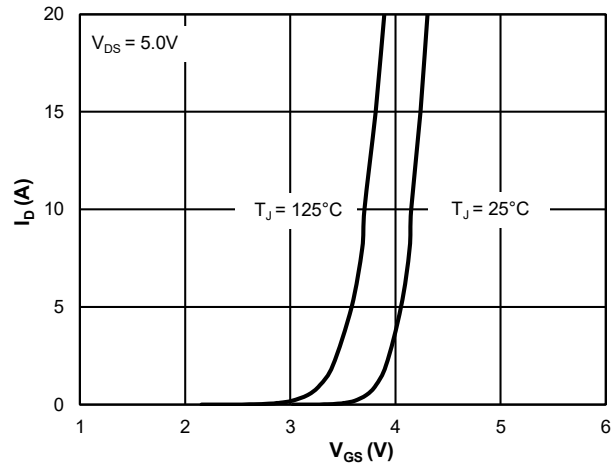


Figure 2: Transfer Characteristics

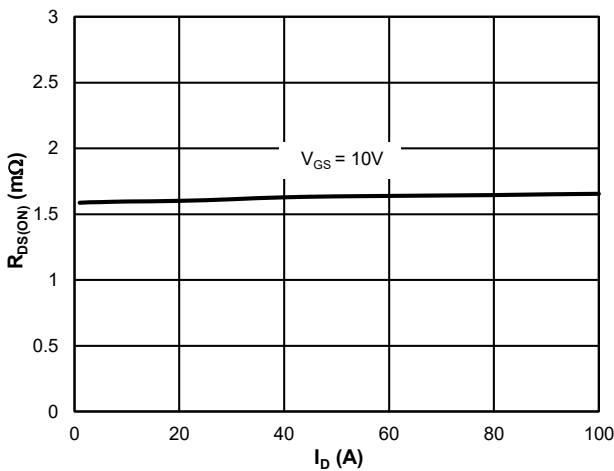


Figure 3: R<sub>DS(ON)</sub> vs. Drain Current

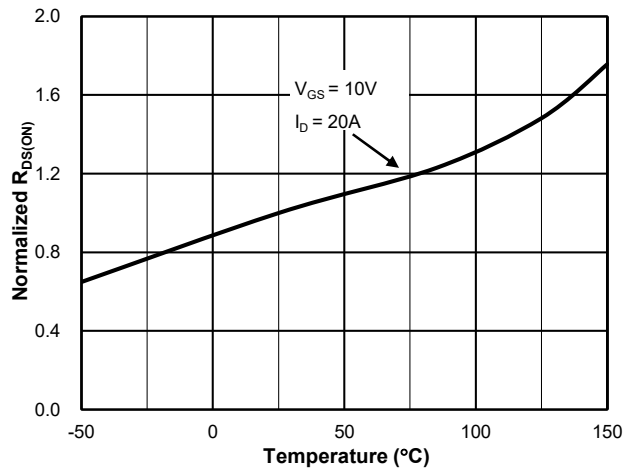


Figure 4: R<sub>DS(ON)</sub> vs. Junction Temperature

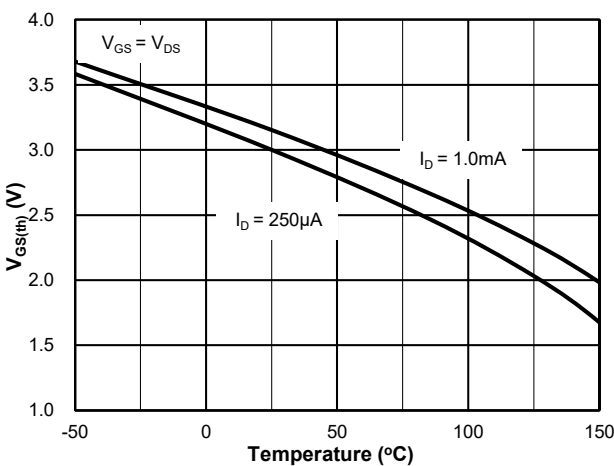


Figure 5: V<sub>GS(th)</sub> vs. Junction Temperature

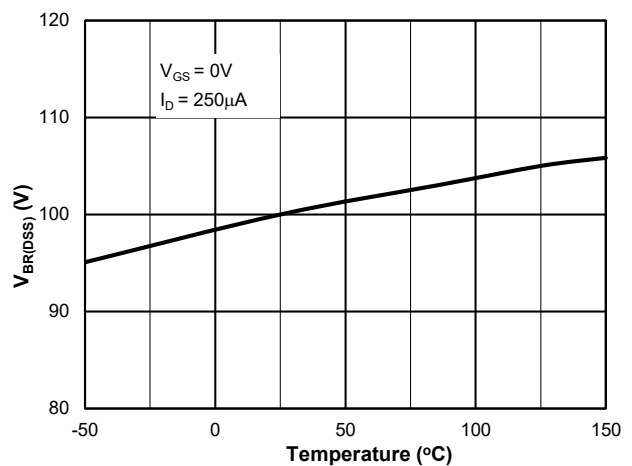


Figure 6: V<sub>BR(DSS)</sub> vs. Junction Temperature

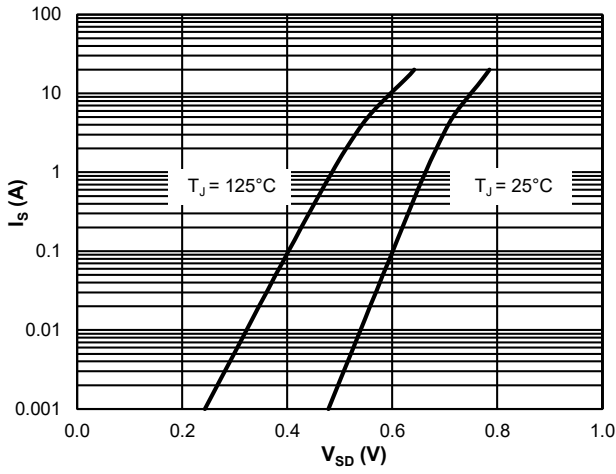


Figure 7: Body-Diode Characteristics

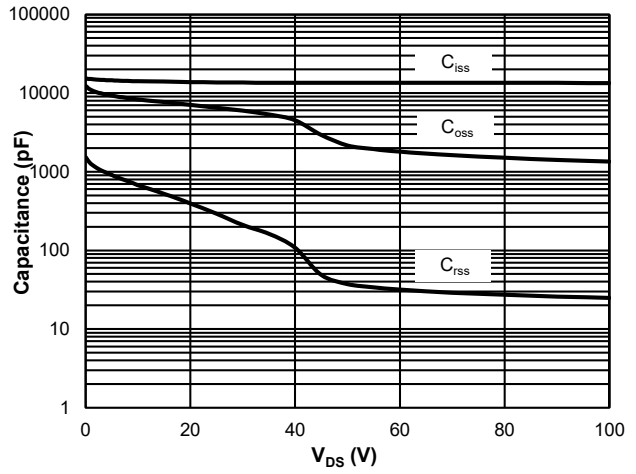


Figure 8: Capacitance Characteristics

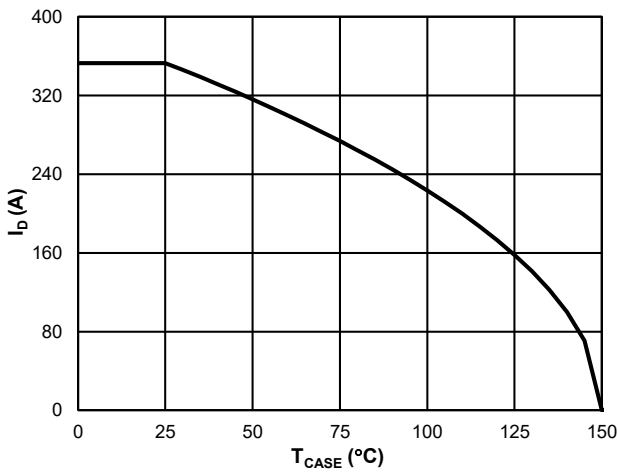


Figure 9: Current De-rating

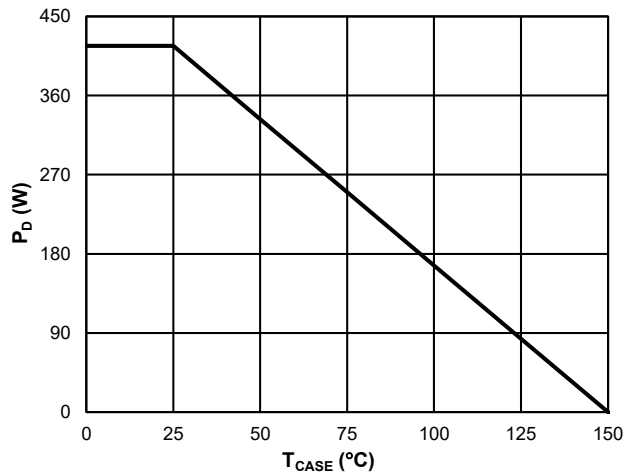


Figure 10: Power De-rating

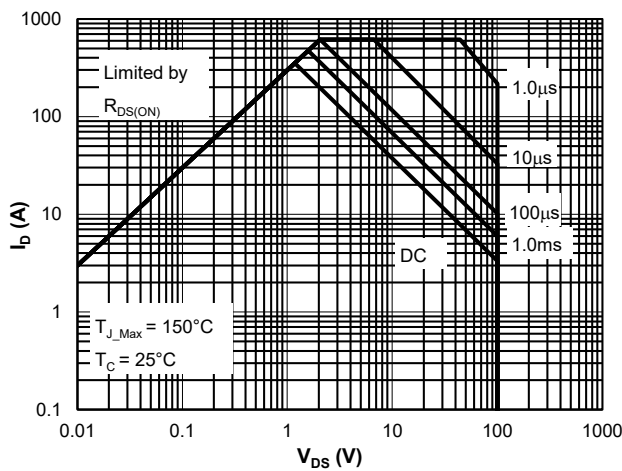


Figure 11: Maximum Safe Operating Area

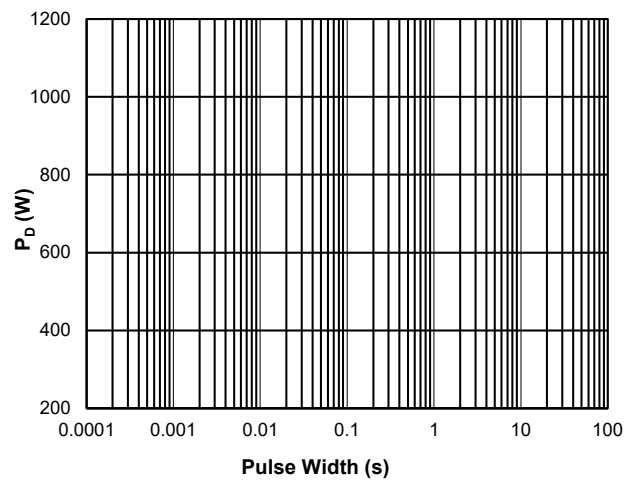
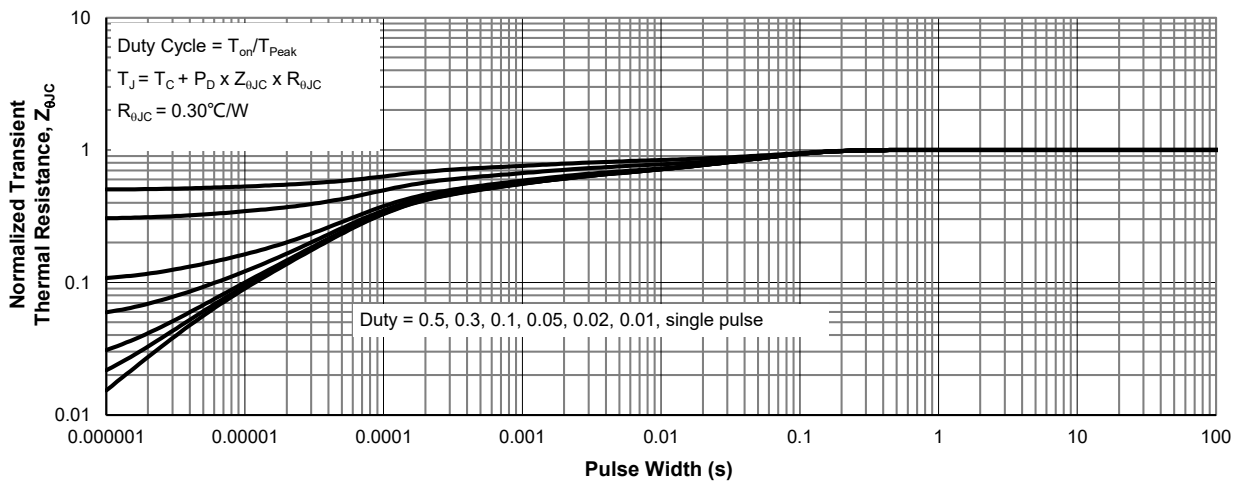
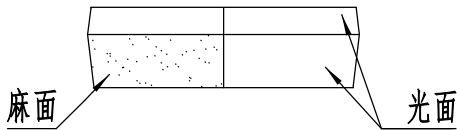
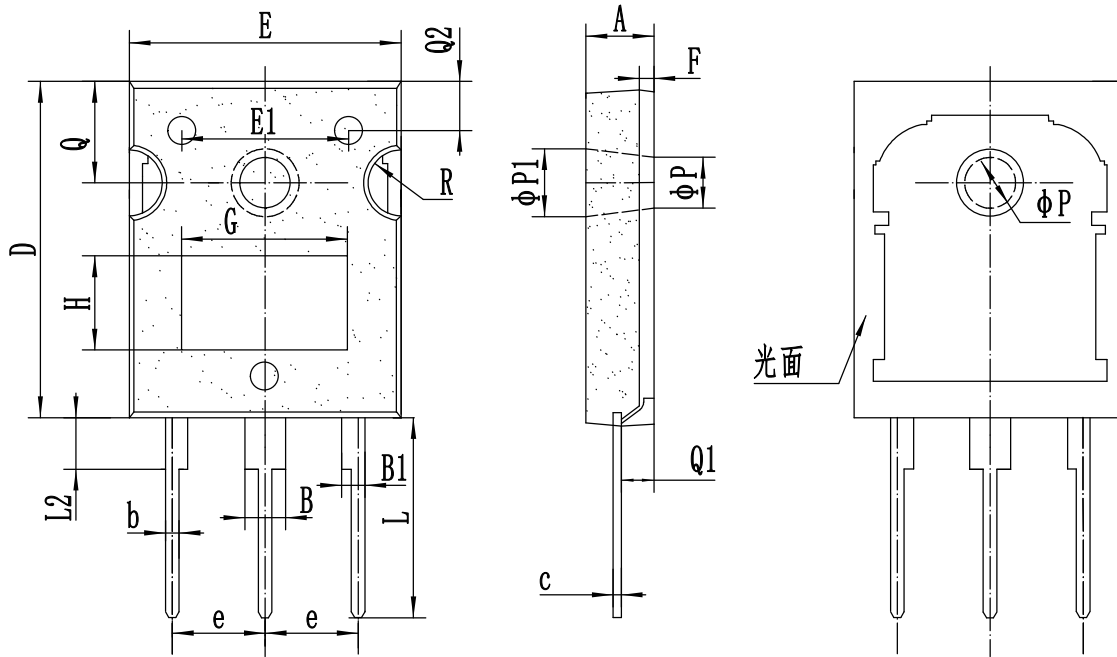


Figure 12: Single Pulse Power Rating, Junction-to-Case



**Figure 13: Normalized Maximum Transient Thermal Impedance**

## TO-247S Package Information:



UNIT: mm

符号 SYMBOL	MM		
	MIN	NOM	MAX
*A	4.90	5.00	5.10
*B	2.95	3.05	3.15
*B1	1.95	2.05	2.15
*b	1.15	1.20	1.30
*c	0.48	0.55	0.63
*D	19.80	20.00	20.20
*E	15.40	15.60	15.80
E1	8.70	8.80	8.90
*e	5.38	5.44	5.50
F	1.22	1.27	1.32
G	9.70	9.80	9.90
H	5.95	6.00	6.05
*L	14.30	14.50	14.80
*L2	3.80	4.00	4.20
*Q	5.40	5.50	5.60
*Q1	2.40	2.50	2.60
Q2	2.25	2.30	2.35
*ΦP	3.50	3.60	3.70
ΦP1	4.00	4.10	4.20
R	2.45	2.50	2.55

### Marking Information:

①. Doingter LOGO

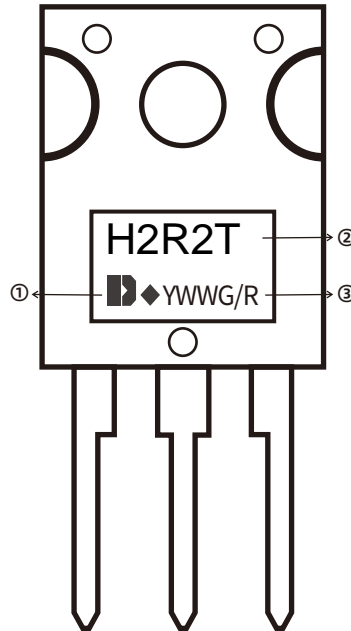
②. Part NO.

③. Date Code(YWWG / R)


Y : Year Code , last digit of the year

WW : Week Code(01-53)

G/R : G(Green) /R(Lead Free)



### Attention :

- Information furnished in this document is believed to be accurate and reliable. However, Shenzhen Doingter Semiconductor Co.,Ltd. assumes no responsibility for the consequences of use without consideration for such information nor use beyond it.
- Information mentioned in this document is subject to change without notice, apart from that when an agreement is signed, Shenzhen Doingter complies with the agreement. Products and information provided in this document have no infringement of patents.
- Shenzhen Doingter assumes no responsibility for any infringement of other rights of third parties which may result from the use of such products and information. This document supersedes and replaces all information previously supplied.  Is a registered trademark of Shenzhen Doingter Semiconductor Co., Ltd. Copyright © 2013 Shenzhen Doingter Semiconductor Co.,Ltd. Printed All rights reserved.