

30V/3A 低饱和压降 PNP 三极管集成 20V 沟槽式 NMOSFET

特性

- 集电极-发射极间低饱和压降
- 大电流驱动能力
- 高电流增益
- 集成 20V 沟槽式 NMOSFET
- 可提供 DFN2X2-6L 封装
- 符合 ROHS 规范

应用

电池充电
便携式电子产品的电源管理

概要

AW3112 是一款利用平面外延工艺生产的 30V PNP 功率三极管，同时集成了 20V 沟槽式 NMOSFET，作为基极开关管。

AW3112 拥有很小的集电极-发射极间饱和压降以及很高的电流增益,特别适用于锂电池的大电流线性充电。

AW3112 提供纤小 DFN2x2-6L 封装，额定的工作温度范围为-40℃至+150℃。

引脚分布图及标识图

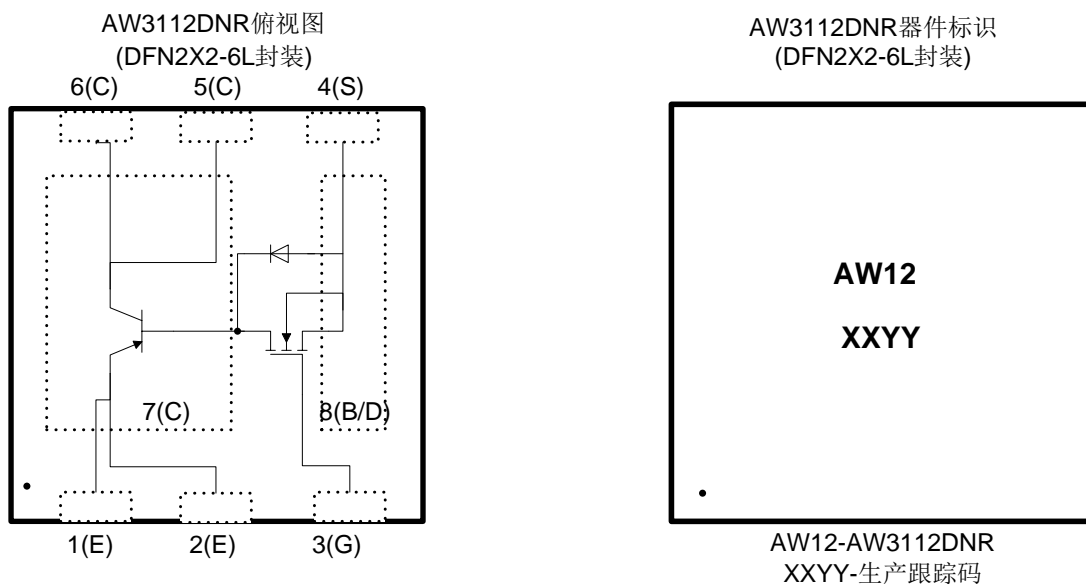


图 1 AW3112 引脚分布(左)及标识图(右)

30V/3A PNP Low V_{CESAT} BJT, Integrated with 20V Trench NMOSFET

FEATURES

- Low collector-emitter saturation voltage
- Large current capability
- High current gain
- DFN2x2-6L Package
- ROHS compliant

APPLICATIONS

Battery Charging
 Portable Device Power Management

GENERAL DESCRIPTION

The AW3112 is 30V PNP power bipolar transistor using epitaxial planar technology, integrating with a 20V trench NMOSFET as a switch transistor of base.

The AW3112 has low V_{CESAT} and high current gain. It is suitable for linear regulator in battery charging application.

AW3112 is available in DFN2x2-6L package. It is specified among the industrial temperature range of -40°C and $+150^{\circ}\text{C}$

PIN CONFIGURATION AND MARKING

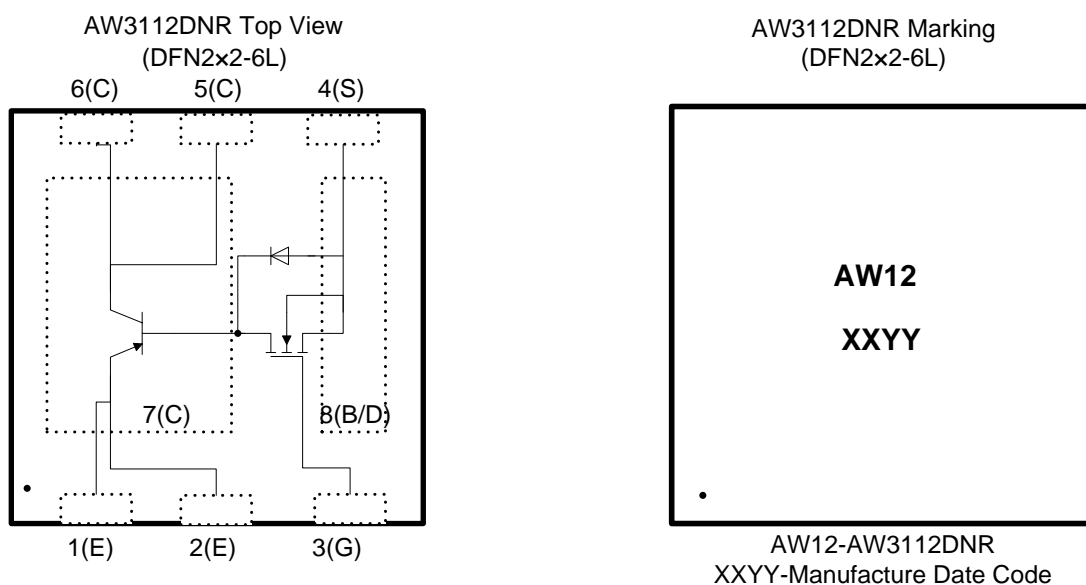


Figure 1 Pin Configuration and Top Mark

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PIN DEFINITION

No.	NAME	DESCRIPTION
1	E	Emitter of 30V PNP BJT transistor.
2	E	
3	G	Gate of 20V NMOS transistor.
4	S	Source of 20V NMOS transistor.
5	C	Collector of 30V PNP BJT transistor.
6	C	
7	C	Exposed pad, should be connected to pin5/6 on PCB board.
8	B/D	Exposed pad, the junction of PNP base and NMOS drain, should be floated on PCB board.

TYPICAL APPLICATION CIRCUITS

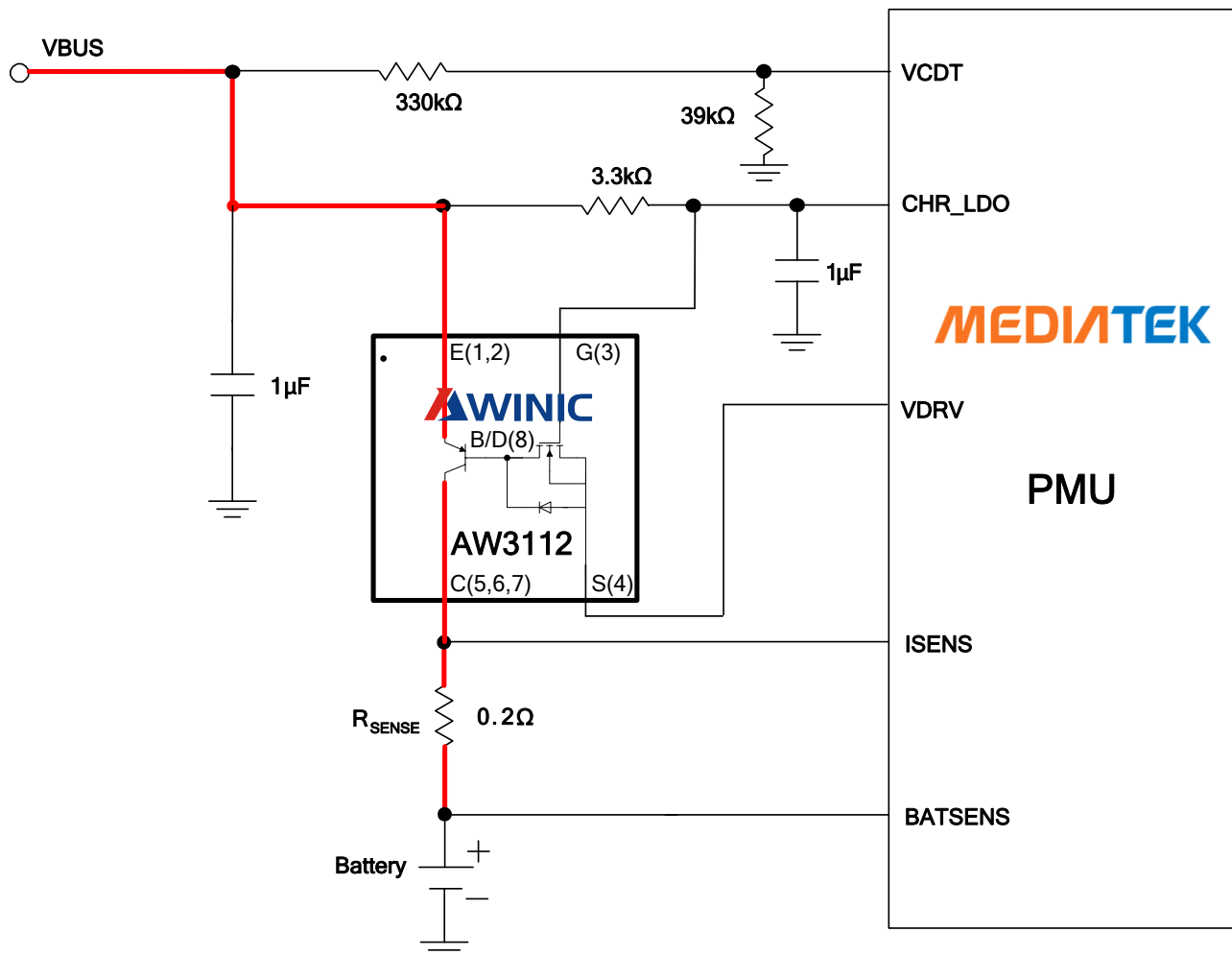
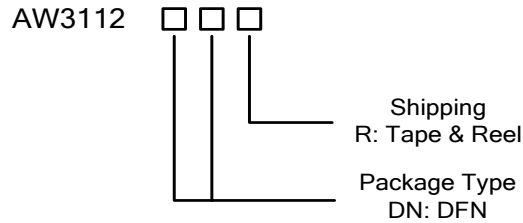


Figure 2 AW3112 Application Circuit with MTK PMU, e.g. MT6323 MT6329^{NOTE1}

Note1: The red route in the figure above indicates the large current path, please pay attention to the path width on PCB board. In general, a factor of 40mil/A between path width and current is suitable. For example, the current set is 0.8A, then the path width should not less than 40×0.8=32mil.

ORDERING INFORMATION

Part Number	Temperature	Package	Marking	Delivery Form
AW3112 DNR	-40°C~85°C	DFN2x2mm-6L	AW12	3000 units/ Tape and Reel



ABSOLUTE MAXIMUM RATINGS^(NOTE1)

Symbol	Parameter	Value	Unit
30V PNP BJT			
Vcbo	Collector-Base Voltage	-40	V
Vceo	Collector-Emitter Voltage	-32	V
Vebo	Emitter-base Voltage	-6	V
Ic	Collector Current	-3	A
Icm	Collector Peak Current	-6	A
20V NMOSFET			
Vdss	Drain-source voltage	20	V
Vgss	Gate-source voltage	±8	V
Id	Drain current	180	mA
Idp	Drain peak current	360	mA
Temperature, Dissipation and Thermal Resistance			
Ptot	Total Dissipation	1.5	W
Tj	Junction Temperature	150	°C
Tstg	Storage Temperature	-65~150	°C
T _L	Lead Temperature	260	°C
θJA	Thermal Resistance	85.6	°C/W

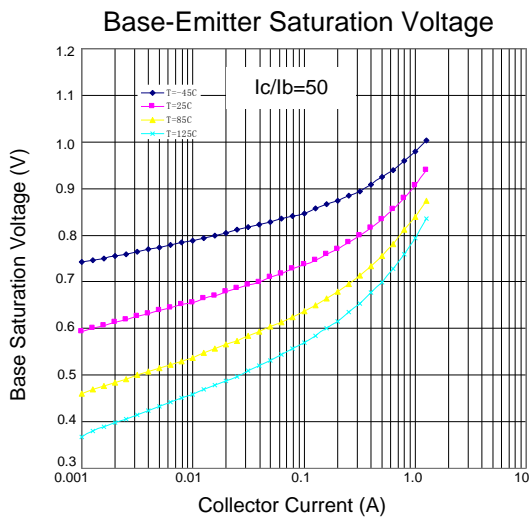
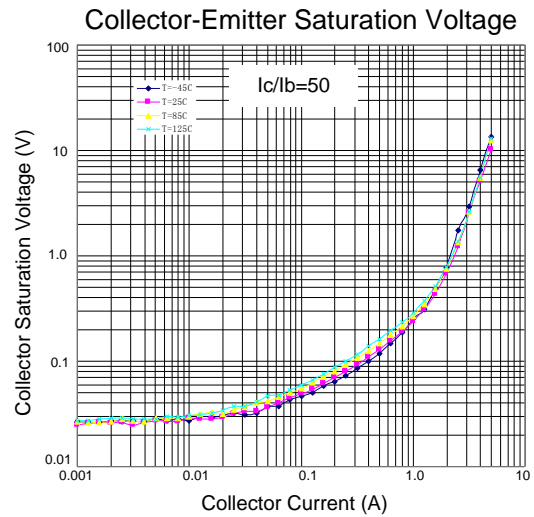
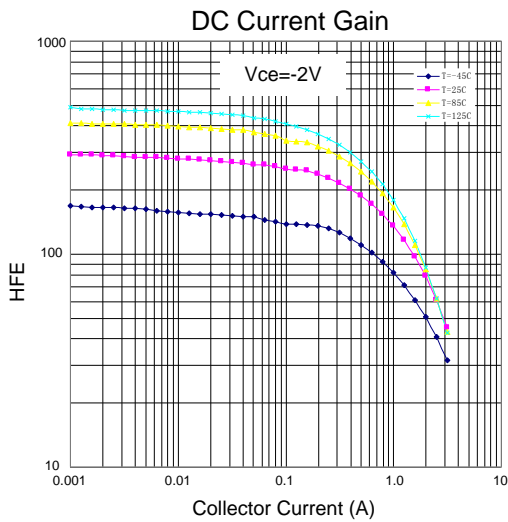
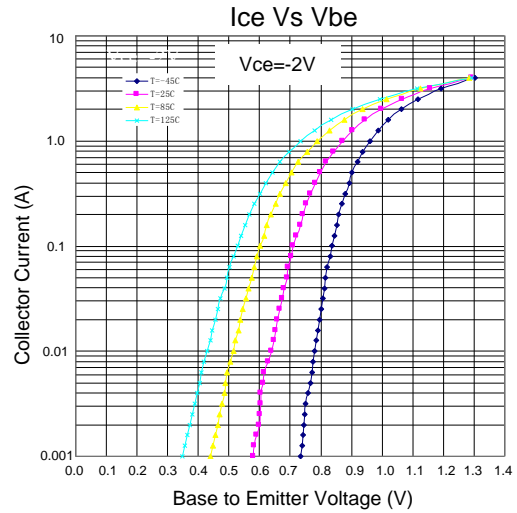
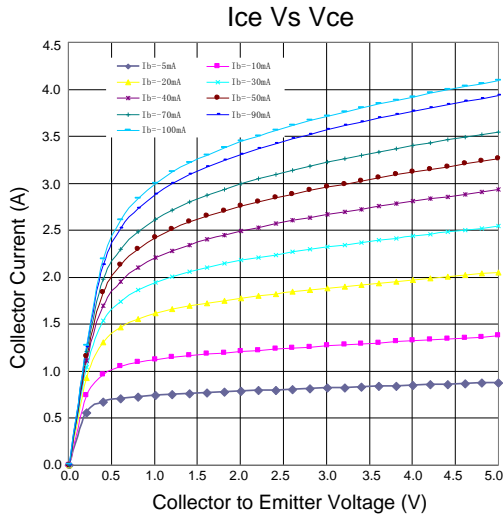
NOTE1: Conditions out of those ranges listed in "absolute maximum ratings" may cause permanent damages to the device. In spite of the limits above, functional operation conditions of the device should be within the ranges listed in "recommended operating conditions". Exposure to absolute-maximum-rated conditions for prolonged periods may affect device reliability.

ELECTRICAL CHARACTERISTICS

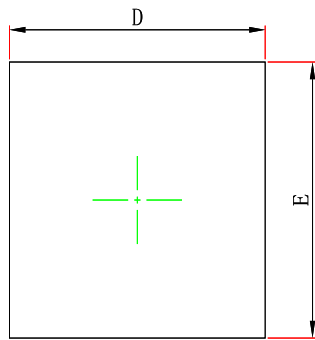
T=25°C unless otherwise specified.

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Unit
30V PNP BJT						
BV _{ceo}	Collector-emitter breakdown voltage	I _c =-10mA, I _b =0mA	-32			V
BV _{cbo}	Collector-base breakdown voltage	I _c =-0.1mA, I _e =0mA	-40			V
BV _{ebo}	Emitter-base breakdown voltage	I _e =-1mA, I _c =0mA	-6			V
I _{cbo}	Collector cutoff current	V _{cb} =-30V			-0.1	μA
I _{ebo}	Emitter cutoff current	V _{eb} =-5V			-0.1	μA
V _{ce(sat)}	Collect-emitter saturation voltage	I _c =-1A, I _b =-20mA			-0.35	V
V _{be(sat)}	Base-emitter saturation voltage	I _c =-1A, I _b =-20mA			-1.2	V
HFE1	DC current gain	I _c =-1A, V _{ce} =-2V	100			
HFE2	DC current gain	I _c =-0.1A, V _{ce} =-2V	200			
20V NMOSFET						
BV _{dss}	Drain-source breakdown voltage	V _{gs} =0V, I _{ds} =250μA	20			V
V _{th}	Threshold voltage	V _{gs} =V _{ds} , I _{ds} =250μA	0.4		1.0	V
I _{gss}	Gate leakage current	V _{ds} =0V, V _{gs} =±8V			±100	nA
I _{dss}	Drain leakage current	V _{gs} =0V, V _{ds} =20V			1	μA
R _{ds(on)}	Drain-source on-resistance	V _{gs} =2.5V, I _d =50mA			0.5	Ω
		V _{gs} =1.5V, I _d =50mA			1	
V _{sd}	Body diode forward voltage	I _{sd} =1A, V _{gs} =0V	0.5		1.2	V

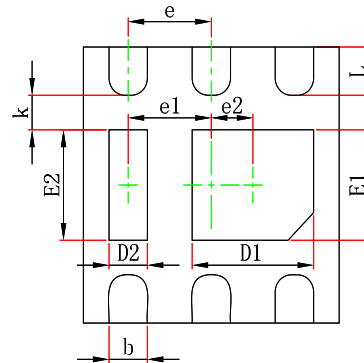
TYPICAL CHARACTERISTICS



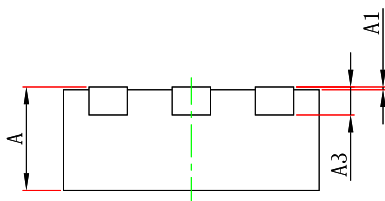
PACKAGE DESCRIPTION



Top View



Bottom View



Side View

Symbol	Dimensions In Millimeters		
	MIN	NOM	MAX
A	0.700	0.750	0.800
A1	0.000	0.025	0.050
A3	0.203REF		
D	1.924	2.000	2.076
E	1.924	2.000	2.076
D1	0.850	0.950	1.050
E1	0.700	0.800	0.900
D2	0.200	0.300	0.400
E2	0.700	0.800	0.900
e1	0.650TYP		
e2	0.325TYP		
k	0.200MIN		
b	0.250	0.300	0.350
e	0.650TYP		
L	0.300	0.350	0.400

REVISION HISTORY

Version	Date	Change Record
V1.0(CHN)	April 2014	Officially Released
V1.0(ENG)	March 2015	Officially Released

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