

SE720

**PNP Low VCEsat Transistor with N-Channel Trench MOSFET**

Revision: A

**General Description**

Combination of PNP low VCEsat Breakthrough in Small Signal transistor and N-Channel Trench MOSFET

- Simple Drive Requirement
- Small Package Outline
- Surface Mount Device

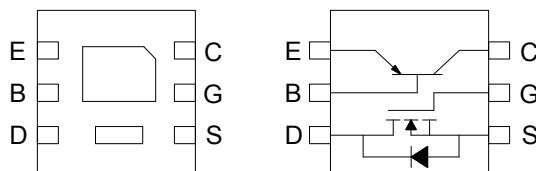
**Features**

For a single MOSFET

- $V_{DS} = 20V$
- $R_{DS(ON)} = 500m\Omega @ V_{GS}=4.5V$
- $R_{DS(ON)} = 900m\Omega @ V_{GS}=2.5V$

**Pin configurations**

See Diagram below

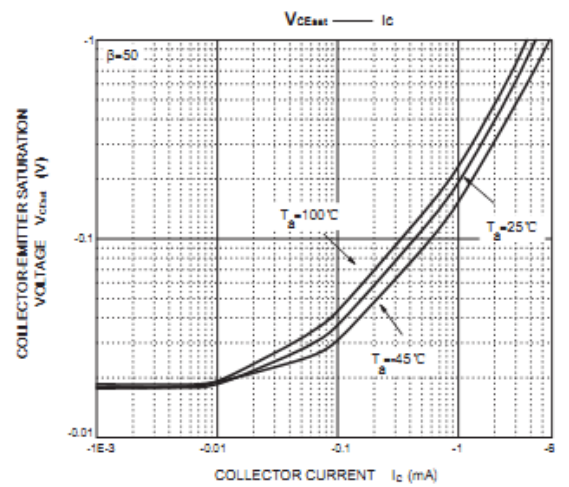
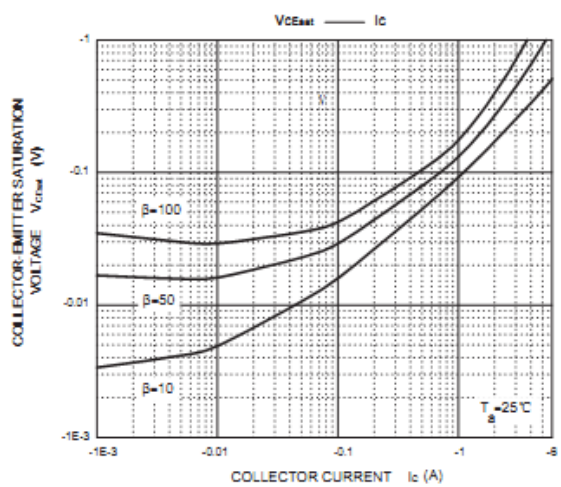
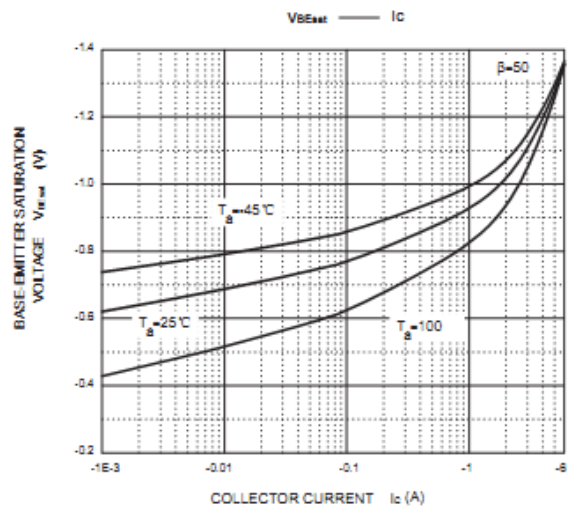
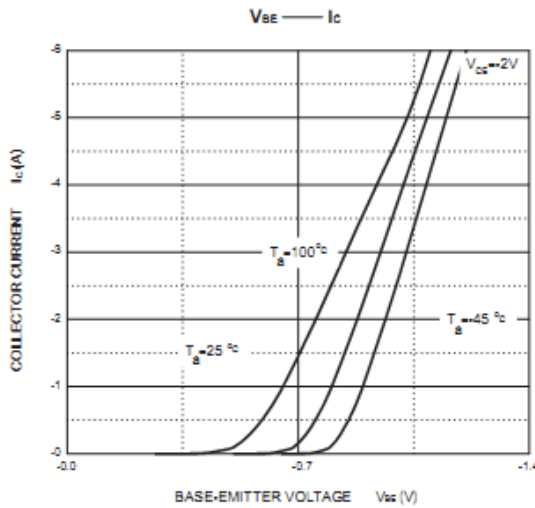
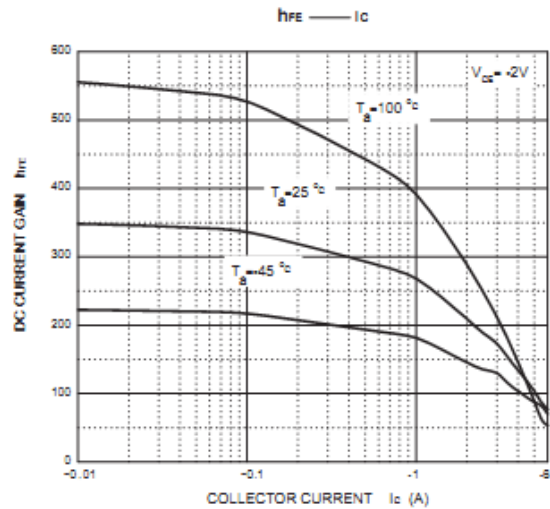
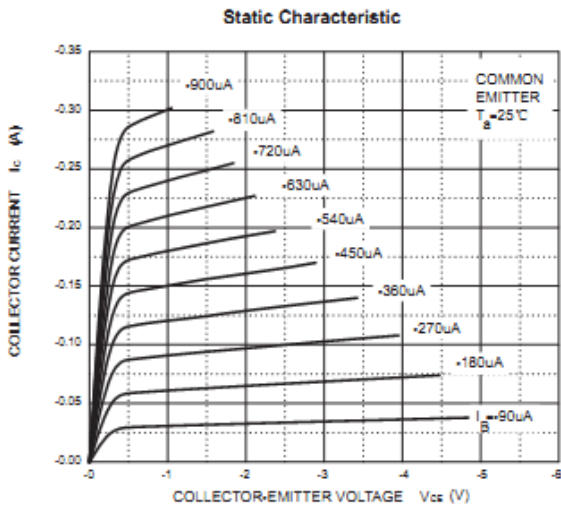


**Absolute Maximum Ratings**

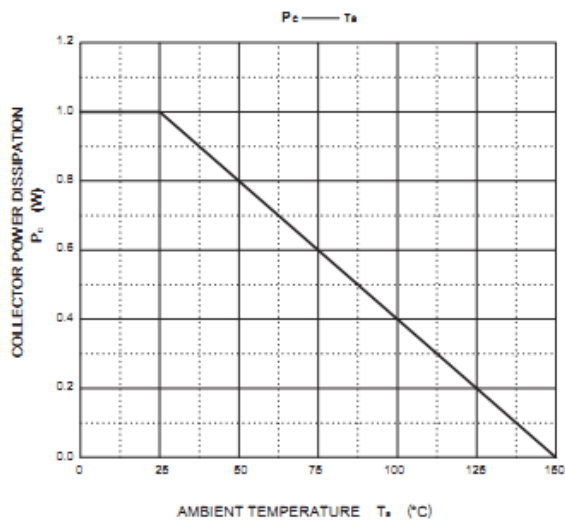
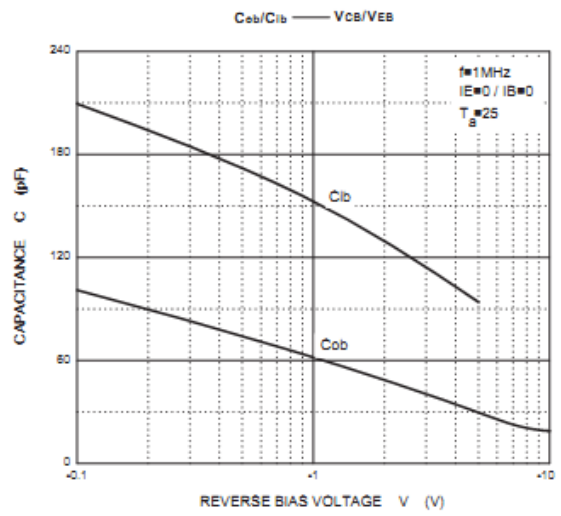
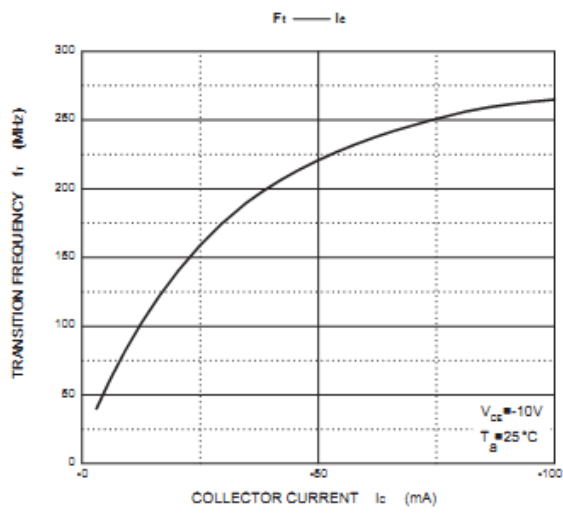
Parameter	Symbol	Rating	Units	
Drain-Source Voltage (MOSFET)	$V_{DS}$	20	V	
Collector-Emitter breakdown voltage (PNP transistor)	$BV_{CEO}$	-25	V	
Gate-Source Voltage (MOSFET)	$V_{GS}$	$\pm 12$	V	
Collector-Base breakdown voltage (PNP transistor)	$V_{CB}$	-25	V	
Emitter-Base breakdown voltage (PNP transistor)		-6	V	
Drain Current(MOSFET)	Continuous	0.3	A	
	Pulsed	0.8		
Total Power Dissipation	@TA=25°C	$P_D$	2	W
Operating Junction Temperature Range	$T_J$		-55 to 150	°C

Electrical Characteristics (T <sub>J</sub> =25°C unless otherwise noted)						
Symbol	Parameter	Test Conditions	Min	Typ	Max	Units
<b>Static Characteristics</b>						
BV <sub>DSS</sub>	Drain-Source Breakdown Voltage	I <sub>D</sub> =250μA, V <sub>GS</sub> =0 V	20			V
I <sub>DSS</sub>	Drain to Source Leakage Current	V <sub>DS</sub> = 20V, V <sub>GS</sub> =0V			1	μA
I <sub>GSS</sub>	Gate-Body Leakage Current	V <sub>GS</sub> =8V			10	nA
V <sub>GS(th)</sub>	Gate Threshold Voltage	V <sub>DS</sub> = V <sub>GS</sub> , I <sub>D</sub> =250μA			2.5	V
R <sub>DS(ON)</sub>	Static Drain-Source On-Resistance	V <sub>GS</sub> =4.5V, I <sub>D</sub> =0.1A	-	500	750	mΩ
		V <sub>GS</sub> =2.5V, I <sub>D</sub> =0.1A		900	1000	mΩ
V <sub>SD</sub>	Diode Forward Voltage	I <sub>SD</sub> =150mA, V <sub>GS</sub> =0V		0.68	1.2	V
<b>DYNAMIC PARAMETERS</b>						
C <sub>iss</sub>	Input Capacitance	V <sub>GS</sub> =0V, V <sub>DS</sub> =16V, f=200kHz		120		pF
C <sub>oss</sub>	Output Capacitance			40		pF
C <sub>rss</sub>	Reverse Transfer Capacitance			25		pF
<b>PNP Transistor Specifications</b>						
V <sub>(BR)CBO</sub>	Collector-base breakdown Voltage	I <sub>C</sub> =-50μA, I <sub>E</sub> =0	-40			V
V <sub>(BR)CEO</sub>	Collector-emitter breakdown Voltage	I <sub>C</sub> =-1mA, I <sub>B</sub> =0	-20			
V <sub>(BR)EBO</sub>	Emitter-base breakdown Voltage	I <sub>E</sub> =-50μA, I <sub>C</sub> =0	-5			
I <sub>CBO</sub>	Collector-base breakdown Current	V <sub>CB</sub> =-40V, I <sub>E</sub> =0			-200	μA
I <sub>EBO</sub>	Emitter-base breakdown Current	V <sub>EB</sub> =5V, I <sub>C</sub> =0			-200	
h <sub>FE</sub>	DC current gain	V <sub>CE</sub> =-2, I <sub>C</sub> =-500mA	100		300	
V <sub>CE(sat)</sub>	Collector-emitter saturation voltage	I <sub>C</sub> =-0.8A, I <sub>B</sub> =-10mA		-320	-500	mV
<b>Thermal Resistance</b>						
Symbol	Parameter		Typ	Max	Units	
R <sub>θJA</sub>	Junction to Ambient At Steady State (MOSFET)		-	150	°C/W	
R <sub>θJA</sub>	Junction to Ambient At Steady State (PNP Transistor)			125	°C/W	

Typical Characteristics

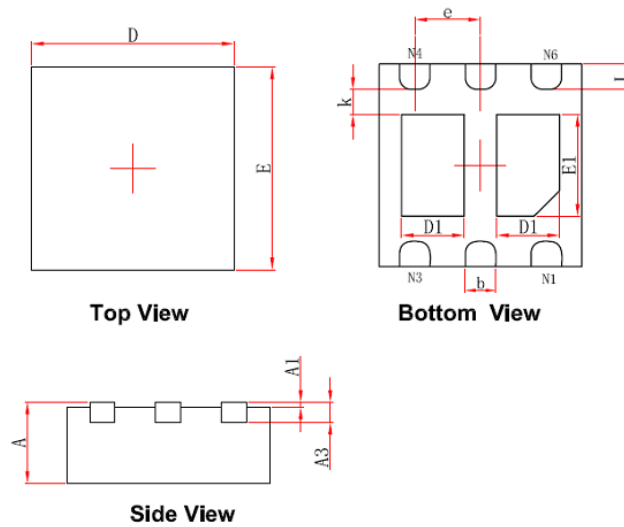


Typical Characteristics



## Package Outline Dimension

## DFN2X2X0.75



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.700/0.800	0.800/0.900	0.028/0.031	0.031/0.035
A1	0.000	0.050	0.000	0.002
A3	0.203REF.		0.008REF.	
D	1.924	2.076	0.076	0.082
E	1.924	2.076	0.076	0.082
D1	0.520	0.720	0.020	0.028
E1	0.900	1.100	0.035	0.043
k	0.200MIN.		0.008MIN.	
b	0.250	0.350	0.010	0.014
e	0.650TYP.		0.026TYP.	
L	0.174	0.326	0.007	0.013

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SHANGHAI SINO-IC MICROELECTRONICS CO., LTD

Add: Building 3, Room 3401-03, No.200 Zhangheng Road,  
ZhangJiang Hi-Tech Park, Pudong, Shanghai 201203, China

Phone: +86-21-33932402 33932403

33932405 33933508 33933608

Fax: +86-21-33932401

Email: szrxw002@126.com

Website: <http://www.sino-ic.net>