



Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of "Quality Parts,Customers Priority,Honest Operation,and Considerate Service",our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



## Contact us

Tel: +86-755-8981 8866 Fax: +86-755-8427 6832

Email & Skype: info@chipsmall.com Web: www.chipsmall.com

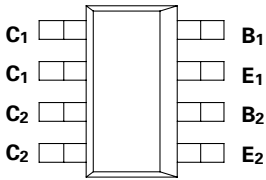
Address: A1208, Overseas Decoration Building, #122 Zhenhua RD., Futian, Shenzhen, China



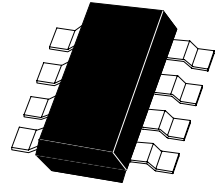
# SM-8 DUAL NPN MEDIUM POWER HIGH GAIN TRANSISTORS

ISSUE 1 - NOVEMBER 1995

## ZDT619



PARTMARKING DETAIL - T619



SM-8  
(8 LEAD SOT223)

### ABSOLUTE MAXIMUM RATINGS.

PARAMETER	SYMBOL	VALUE	UNIT
Collector-Base Voltage	$V_{CBO}$	50	V
Collector-Emitter Voltage	$V_{CEO}$	50	V
Emitter-Base Voltage	$V_{EBO}$	5	V
Peak Pulse Current	$I_{CM}$	6	A
Continuous Collector Current	$I_C$	2	A
Operating and Storage Temperature Range	$T_j; T_{stg}$	-55 to +150	°C

### THERMAL CHARACTERISTICS

PARAMETER	SYMBOL	VALUE	UNIT
Total Power Dissipation at $T_{amb} = 25^\circ\text{C}^*$ Any single die "on" Both die "on" equally	$P_{tot}$	2 2.5	W W
Derate above $25^\circ\text{C}^*$ Any single die "on" Both die "on" equally		16 20	mW/°C mW/°C
Thermal Resistance - Junction to Ambient* Any single die "on" Both die "on" equally		62.5 50	°C/W °C/W

\* The power which can be dissipated assuming the device is mounted in a typical manner on a PCB with copper equal to 2 inches square.

# ZDT619

## ELECTRICAL CHARACTERISTICS (at $T_{amb} = 25^{\circ}\text{C}$ unless otherwise stated).

PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	CONDITIONS.
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	50	190		V	$I_C=100\mu\text{A}$
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	50	65		V	$I_C=10\text{mA}^*$
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	5	8.3		V	$I_E=100\mu\text{A}$
Collector Cutoff Current	$I_{CBO}$			100	nA	$V_{CB}=40\text{V}$
Emitter Cutoff Current	$I_{EBO}$			100	nA	$V_{EB}=4\text{V}$
Collector Emitter Cutoff Current	$I_{CES}$			100	nA	$V_{CES}=40\text{V}$
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$		12 125 150	20 200 220	mV mV mV	$I_C=0.1\text{A}, I_B=10\text{mA}^*$ $I_C=1\text{A}, I_B=10\text{mA}^*$ $I_C=2\text{A}, I_B=50\text{mA}^*$
Base-Emitter Saturation Voltage	$V_{BE(sat)}$		0.87	1.0	V	$I_C=2\text{A}, I_B=50\text{mA}^*$
Base-Emitter Turn-On Voltage	$V_{BE(on)}$		0.80	1.0	V	$I_C=2\text{A}, V_{CE}=2\text{V}^*$
Static Forward Current Transfer Ratio	$h_{FE}$	200 300 200 100	400 450 400 225 40			$I_C=10\text{mA}, V_{CE}=2\text{V}^*$ $I_C=200\text{mA}, V_{CE}=2\text{V}^*$ $I_C=1\text{A}, V_{CE}=2\text{V}^*$ $I_C=2\text{A}, V_{CE}=2\text{V}^*$ $I_C=6\text{A}, V_{CE}=2\text{V}^*$
Transition Frequency	$f_T$	100	165		MHz	$I_C=50\text{mA}, V_{CE}=10\text{V}$ $f=100\text{MHz}$
Output Capacitance	$C_{obo}$		12	20	pF	$V_{CB}=10\text{V}, f=1\text{MHz}$
Turn-On Time	$t_{on}$		170		ns	$V_{CC}=10\text{V}, I_C=1\text{A}$ $I_{B1}=-I_{B2}=10\text{mA}$
Turn-Off Time	$t_{off}$		750		ns	

\*Measured under pulsed conditions. Pulse width=300 $\mu\text{s}$ . Duty cycle  $\leq 2\%$

# ZDT619

## TYPICAL CHARACTERISTICS

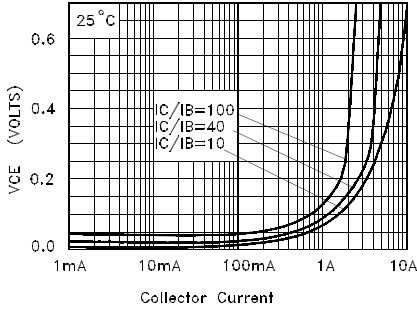


FIG. 1  $V_{CE(SAT)}$  vs  $I_C$

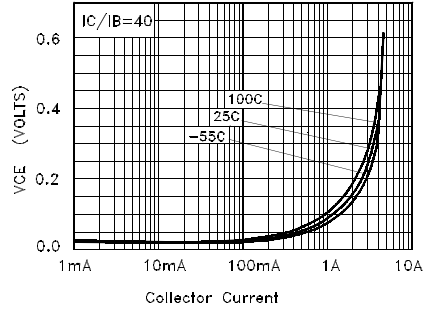


FIG. 2  $V_{CE(SAT)}$  vs  $I_C$

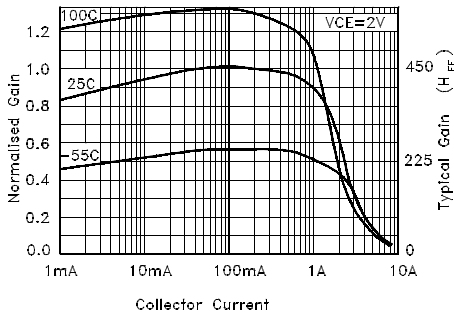


FIG. 3  $H_{FE}$  vs  $I_C$

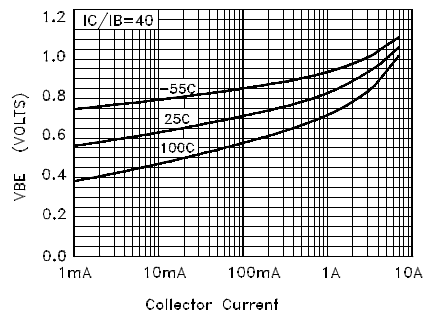


FIG. 4  $V_{BE(SAT)}$  vs  $I_C$

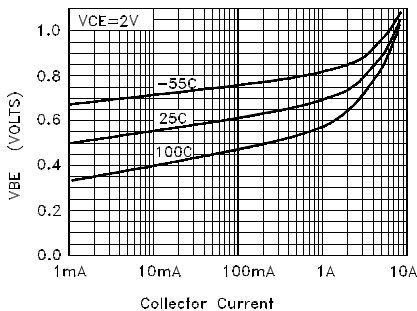


FIG. 5  $V_{BE(ON)}$  vs  $I_C$