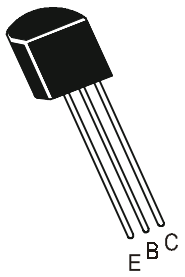
NPN SILICON PLANAR EPITAXIAL TRANSISTORS

2N6515, 2N6519
2N6516, 2N6520
2N6517

TO-92
Plastic Package



HIGH VOLTAGE TRANSISTORS

ABSOLUTE MAXIMUM RATINGS (Ta=25ºC unless specified otherwise)

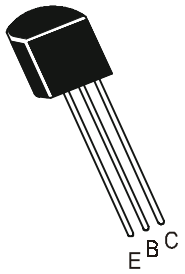
DESCRIPTION	SYMBOL	2N6515	2N6516 2N6519	2N6517 2N6520	UNIT
Collector Emitter Voltage	V_{CEO}	250	300	350	V
Collector Base Voltage	V_{CBO}	250	300	350	V
Emitter Base Voltage	V_{EBO}	NPN	6		V
		PNP	5		V
Collector Current Continuous	I_C		500		mA
Base Current (Continuous)	I_B		250		mA
Total Power Dissipation @ Ta=25ºC	P_D		625		mW
Derate Above 25ºC			5.0		mW/ºC
Operating And Storage Junction Temperature Range	T_{stg}		-55 to +150		ºC
THERMAL RESISTANCE					
Junction to ambient	$R_{th(j-a)}$		200		ºC/W
Junction to case	$R_{th(j-c)}$		83.3		ºC/W

ELECTRICAL CHARACTERISTICS (Ta=25ºC unless specified otherwise)

DESCRIPTION	SYMBOL	TEST CONDITION	MIN	MAX	UNIT
Collector Emitter Breakdown Voltage	BV_{CEO}*	I_C=1mA,I_B=0			
2N6515			250		V
2N6516, 6519			300		V
2N6517, 6520			350		V
Collector Base Breakdown Voltage	BV_{CBO}	I_C=100µA,I_E=0			
2N6515			250		V
2N6516, 6519			300		V
2N6517, 6520			350		V
Emitter Base Breakdown Voltage	BV_{EBO}	I_E=10µA, I_C=0			
NPN			6		V
PNP			5		V

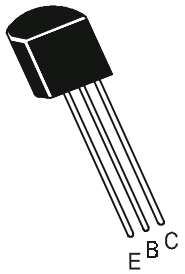
NPN SILICON PLANAR EPITAXIAL TRANSISTORS

2N6515, 2N6519
2N6516, 2N6520
2N6517



TO-92
Plastic Package

DESCRIPTION	SYMBOL	TEST CONDITION	MIN	MAX	UNIT
Collector Cut off Current	I_{CBO}				
2N6515		V_{CB} =150V, I_E=0		50	nA
2N6516, 6519		V_{CE}=200V, I_E=0		50	nA
2N6517, 6520		V_{CE}=250V, I_E=0		50	nA
Emitter Cut off Current	I_{EBO}				
NPN		V_{EB}=5V, I_C=0		50	nA
PNP		V_{EB}=4V, I_C = 0		50	nA
DC Current Gain					µA
	h_{FE}*	V_{CE}=10V,I_C=1mA			
2N6515			35		
2N6516, 6519			30		
2N6517, 6520			20		
2N6515		V_{CE}=10V,I_C=10mA	50		
2N6516, 6519			45		
2N6517, 6520			30		
2N6515		V_{CE}=10V,I_C=30mA	50	300	
2N6516, 6519			45	270	
2N6517, 6520			30	200	
2N6515		V_{CE}=10V,I_C=50mA	45	220	
2N6516, 6519			40	200	
2N6517, 6520			20	200	
2N6515		V_{CE}=10V,I_C=100mA	25		
2N6516, 6519			20		
2N6517, 6520			15		
Base Emitter Saturation Voltage	$V_{BE(sat)}$*	I_C=10mA,I_B=1mA		0.75	V
		I_C=20mA,I_B= 2mA		0.85	V
		I_C=30mA,I_B= 3mA		0.90	V
Collector Emitter Saturation Voltage	$V_{CE(sat)}$*	I_C=10mA,I_B=1mA		0.3	V
		I_C=20mA,I_B=2mA		0.35	V
		I_C=30mA,I_B=3mA		0.50	V
		I_C=50mA,I_B=5mA		1.0	V
Base Emitter on Voltage	V_{BE} (on)*	I_C=100mA, V_{CE}=10V		2.0	V



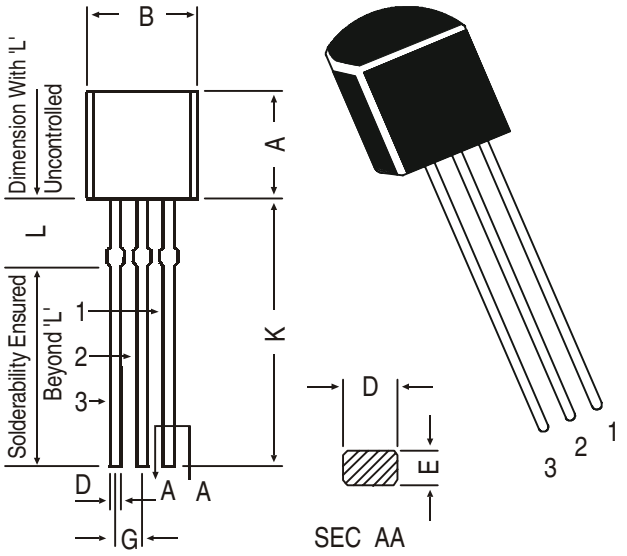
TO-92
Plastic Package

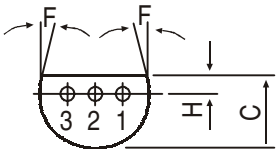
ELECTRICAL CHARACTERISTICS (Ta=25ºC unless specified otherwise)

DESCRIPTION		SYMBOL	TEST CONDITION	MIN	MAX	UNIT
DYNAMIC CHARACTERISTICS						
Transition Frequency		f_T*	I_C=10mA, V_{CE}=20V f=20MHz	40	200	MHz
Collector Base Capacitance		C_{cb}	V_{CB}=20V,I_E=0,f=1MHz		6.0	pF
Emitter Base Capacitance		C_{eb}	V_{EB}=0.5V,f=1MHz,I_C=0			
	NPN				80	pF
	PNP				100	pF
Turn on Time		t_{on}	V_{CC} =100V, V_{BE}(off)=2.0V I_C=50mA, I_{B1}=10mA		200	µs
Turn Off Time		t_{off}	V_C =100V, I_C=50mA, I_{B1}=I_{B2}=10mA		3.5	µs

***Pulse Condition: Width ≤ 300µs, Duty Cycle ≤ 2%.**

TO-92 Plastic Package



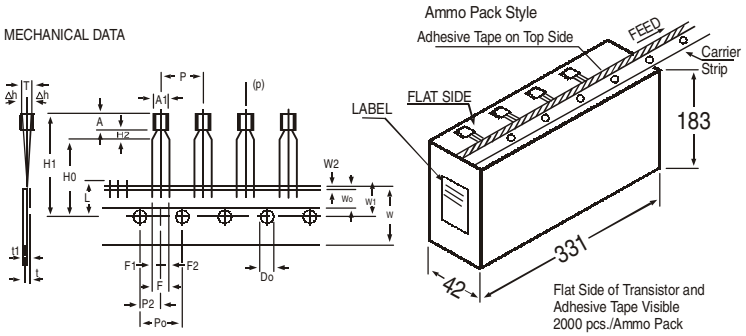


PIN CONFIGURATION
1. COLLECTOR
2. BASE
3. EMITTER

DIM	MIN.	MAX.
A	4.32	5.33
B	4.45	5.20
C	3.18	4.19
D	0.41	0.55
E	0.35	0.50
F	5 DEG	
G	1.14	1.40
H	1.14	1.53
K	12.70	—
L	1.982	2.082

All diminsions in mm.

TO-92 Transistors on Tape and Ammo Pack



All dimensions in mm unless specified otherwise

ITEM	SYMBOL	SPECIFICATION MIN.	NOM.	MAX.	TOL .	REMARKS
BODY WIDTH	A1	4.0		4.8		
BODY HEIGHT	A	4.8		5.2		
BODY THICKNESS	T	3.9		4.2		
PITCH OF COMPONENT	P		12.7		±1	
FEED HOLE PITCH	Po		12.7		±0.3	CUMULATIVE PITCH ERROR 1.0 mm/20 PITCH
FEED HOLE CENTRE TO COMPONENT CENTRE	P2		6.35		±0.4	TO BE MEASURED AT BOTTOM OF CLINCH
DISTANCE BETWEEN OUTER LEADS	F		5.08		+0.6 -0.2	
COMPONENT ALIGNMENT	△h		0	1		AT TOP OF BODY
TAPE WIDTH	W		18		±0.5	
HOLD-DOWN TAPE WIDTH	Wo		6		±0.2	
HOLE POSITION	W1		9		+0.7 -0.5	
HOLD-DOWN TAPE POSITION	W2		0.5		±0.2	
LEAD WIRE CLINCH HEIGHT	Ho		16		±0.5	
COMPONENT HEIGHT	H1			23.25		
LENGTH OF SNIPPED LEADS	L			11.0		
FEED HOLE DIAMETER	Do		4		±0.2	
TOTAL TAPE THICKNESS	t			1.2		t1 0.3 - 0.6
LEAD - TO - LEAD DISTANCEF1,	F2		2.54		+0.4 -0.1	
CLINCH HEIGHT	H2			3		
PULL - OUT FORCE	(P)	6N				

NOTES
1. MAXIMUM ALIGNMENT DEVIATION BETWEEN LEADS NOT TO BE GREATER THAN 0.2 mm.
2. MAXIMUM NON-CUMULATIVE VARIATION BETWEEN TAPE FEED HOLES SHALL NOT EXCEED 1 mm IN 20 PITCHES.
3. HOLDDOWN TAPE NOT TO EXCEED BEYOND THE EDGE(S) OF CARRIER TAPE AND THERE SHALL BE NO EXPOSURE OF ADHESIVE.
4. NO MORE THAN 3 CONSECUTIVE MISSING COMPONENTS ARE PERMITTED.
5. A TAPE TRAILER, HAVING AT LEAST THREE FEED HOLES ARE REQUIRED AFTER THE LAST COMPONENT.
6. SPLICES SHALL NOT INTERFERE WITH THE SPROCKET FEED HOLES.

Packing Detail

PACKAGE	STANDARD PACK		INNER CARTON BOX		OUTER CARTON BOX		
	Details	Net Weight/Qty	Size	Qty	Size	Qty	Gr Wt
TO-92 Bulk	1K/polybag	200 gm/1K pcs	3" x 7.5" x 7.5"	5K	17" x 15" x 13.5"	80K	23 kgs
TO-92 T&A	2K/ammo box	645 gm/2K pcs	12.5" x 8" x 1.8"	2K	17" x 15" x 13.5"	32K	12.5 kgs

Disclaimer

The product information and the selection guides facilitate selection of the CDIL's Discrete Semiconductor Device(s) best suited for application in your product(s) as per your requirement. It is recommended that you completely review our Data Sheet(s) so as to confirm that the Device(s) meet functionality parameters for your application. The information furnished in the Data Sheet and on the CDIL Web Site/CD is believed to be accurate and reliable. CDIL however, does not assume responsibility for inaccuracies or incomplete information. Furthermore, CDIL does not assume liability whatsoever, arising out of the application or use of any CDIL product; neither does it convey any license under its patent rights nor rights of others. These products are not designed for use in life saving/support appliances or systems. CDIL customers selling these products (either as individual Discrete Semiconductor Devices or incorporated in their end products), in any life saving/support appliances or systems or applications do so at their own risk and CDIL will not be responsible for any damages resulting from such sale(s).

CDIL strives for continuous improvement and reserves the right to change the specifications of its products without prior notice.

CDIL is a registered Trademark of
Continental Device India Limited
C-120 Naraina Industrial Area, New Delhi 110 028, India.
Telephone + 91-11-2579 6150, 5141 1112 Fax + 91-11-2579 5290, 5141 1119
email@cdil.com www.cdilsemi.com

2N6515_20Rev280701