New Jersey Semi-Conductor Products, Inc.

20 STERN AVE.
SPRINGFIELD, NEW JERSEY 07081
U.S.A.

TELEPHONE: (973) 376-2922
(212) 227-6005
FAX: (973) 376-8960

COMPLEMENTARY MEDIUM-POWER HIGH VOLTAGE POWER TRANSISTORS

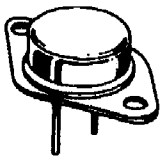
... designed for high-speed switching and linear amplifier application for high-voltage operational amplifiers, switching regulators, convertors, deflection stages and high fidelity amplifiers.

FEATURES:

* Continuous Collector Current - I_C = 2 A
* Power Dissipation - P_D = 35 W @ T_C = 25°C
* $V_{CE(SAT)}$ = 0.75 V (Max.) @ I_C = 1.0 A, I_B = 125 mA

NPN	PNP
2N3583	2N6420
2N3584	2N6421
2N3585	2N6422
2N4240	2N6423

1.0 AND 2.0 AMPERE
POWER TRANSISTOR
COMPLEMENTARY SILICON
175-300 VOLTS
35 WATTS



TO-66

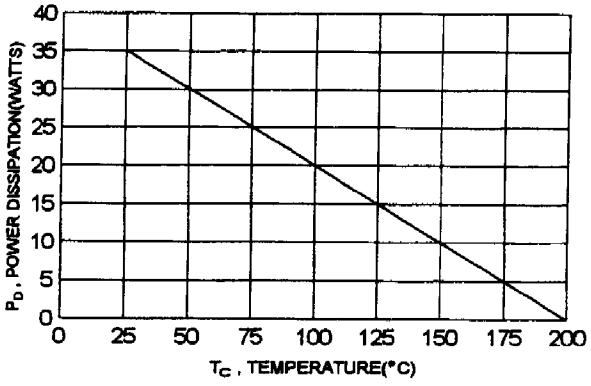
MAXIMUM RATINGS

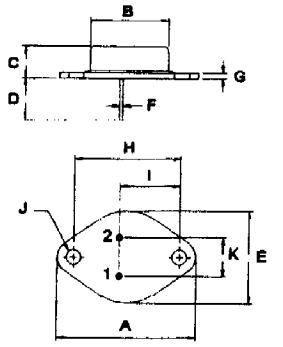
Characteristic	Symbol	2N3583 2N6420	2N3584 2N6421	2N3585 2N6422	2N4240 2N6423	Unit
Collector-Emitter Voltage	V_{CEO}	175	250	300	300	V
Collector-Base Voltage	V_{CBO}	250	375	500	500	V
Emitter-Base Voltage	V_{EBO}	6				V
Collector Current-Continuous Peak	I_C	1.0 5.0	2.0 5.0			A
Base Current	I_B	1.0				A
Total Power Dissipation @T_C=25°C Derate above 25°C	P_D	35 0.2				W W/°C
Operating and Storage Junction Temperature Range	T_J, T_{STG}	-65 to +200				°C

THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Thermal Resistance Junction to Case	Rθjc	5.0	°C/W

FIGURE -1 POWER DERATING





PIN 1.BASE
2.EMITTER
COLLECTOR (CASE)

DIM	MILLIMETERS	
	MIN	MAX
A	30.60	32.52
B	13.85	14.16
C	6.54	7.22
D	9.50	10.50
E	17.26	18.46
F	0.76	0.92
G	1.38	1.65
H	24.16	24.78
I	13.84	15.60
J	3.32	3.92
K	4.86	5.34

ELECTRICAL CHARACTERISTICS (T_C = 25°C unless otherwise noted)

Characteristic		Symbol	Min	Max	Unit
OFF CHARACTERISTICS					
Collector - Emitter Sustaining Voltage (1)		$V_{CEO(SUS)}$			V
(I_C = 200 mA, I_B = 0) NPN	2N3583,2N6420		175		
	2N3584,2N6421		250		
(I_C = 50 mA, I_B = 0) PNP	2N3585,2N6422		300		
	2N4240,2N6423		300		
Collector Cutoff Current		I_{CEO}			mA
(V_{CE} = 150 V, I_B = 0)	2N3583,2N6420			10	
	2N3584,2N6421			5.0	
	2N3585,2N6422			5.0	
	2N4240,2N6423			5.0	
Collector Cutoff Current		I_{CEX}			mA
(V_{CE} = 225 V, $V_{BE(off)}$ = 1.5 V)	2N3583,2N6420			1.0	
(V_{CE} = 340 V, $V_{BE(off)}$ = 1.5 V)	2N3584,2N6421			1.0	
(V_{CE} = 450 V, $V_{BE(off)}$ = 1.5 V)	2N3585,2N6422			1.0	
	2N4240,2N6423			2.0	
(V_{CE} = 225 V, $V_{BE(off)}$ = 1.5 V, T_C = 150°C)	2N3583,2N6420			3.0	
(V_{CE} = 300 V, $V_{BE(off)}$ = 1.5 V, T_C = 150°C)	2N3584,2N6421			3.0	
	2N3585,2N6422			3.0	
	2N4240,2N6423			5.0	
Emitter Cutoff Current		I_{EBO}			mA
(V_{EB} = 6.0 V, I_C = 0)	2N3583,2N6420			5.0	
	2N3584,2N6421			0.5	
	2N3585,2N6422			0.5	
	2N4240,2N6423			0.5	
ON CHARACTERISTICS (1)					
DC Current Gain		hFE			
(I_C = 0.1 A , V_{CE} = 10 V)	All devices		40		
(I_C = 0.5 A , V_{CE} = 10 V)	2N3583,2N6420		40	200	
(I_C = 0.75 A , V_{CE} = 2.0 V)	2N4240,2N6423		10	100	
(I_C = 0.75 A , V_{CE} = 10 V)	2N4240,2N6423		30	150	
(I_C = 1.0 A , V_{CE} = 2.0 V)	2N3584,2N6421		8.0	80	
	2N3585,2N6422		8.0	80	
(I_C = 1.0 A , V_{CE} = 10 V)	2N3583,2N6420		10		
	2N3584,2N6421		25	100	
	2N3585,2N6422		25	100	
Collector - Emitter Saturation Voltage		$V_{CE(sat)}$			V
(I_C = 0.75 A , I_B = 75 mA)	2N4240,2N6423			1.0	
(I_C = 1.0 A , I_B = 125 mA)	2N3583,2N6420			5.0	
	2N3584,2N6421			0.75	
	2N3585,2N6422			0.75	
Base - Emitter Saturation Voltage		$V_{BE(sat)}$			V
(I_C = 0.75 A , I_B = 75 mA)	2N4240,2N6423			1.8	
(I_C = 1.0 A , I_B = 100 mA)	2N3584,2N6421			1.4	
	2N3585,2N6422			1.4	
Base - Emitter On Voltage		$V_{BE(on)}$			V
(I_C = 1.0 A , V_{CE} = 10 V)	All devices			1.4	

(1) Pulse Test: Pulse width = 300 us , Duty Cycle ≤ 2.0%