

COMPLEMENTARY SILICON POWER TRANSISTORS

...designed for various specific and general purpose application such as; output and driver stages of amplifiers operating at frequencies from DC to greater than 1.0MHz series, shunt and switching regulators; low and high frequency inverters/converters and many others.

FEATURES:

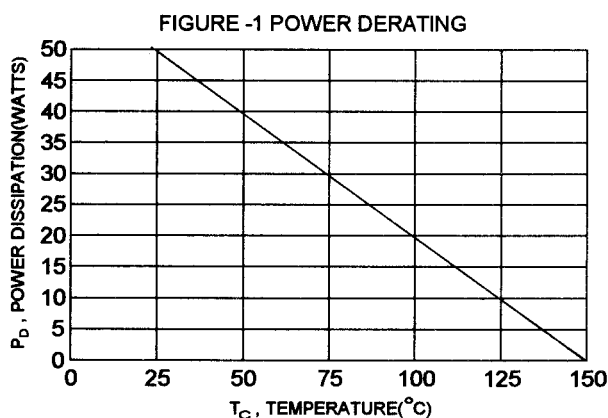
- * Very Low Collector Saturation Voltage
- * Excellent Linearity
- * Fast Switching
- * PNP Values are Negative, Observe Proper Polarity.

MAXIMUM RATINGS

Characteristic	Symbol	D44VM1 D45VM1	D44VM4 D45VM4	D44VM7 D45VM7	D44VM10 D45VM10	Unit
Collector-Emitter Voltage	V_{CEO}	30	45	60	80	V
Collector-Emitter Voltage	V_{CEV}	50	70	80	100	V
Emitter-Base Voltage	V_{EBO}	7.0				V
Collector Current - Continuous Peak	I_C I_{CM}	8.0 16				A
Base Current	I_B	1.5				A
Total Power Dissipation @ $T_C = 25^\circ\text{C}$ Derate above 25°C	P_D	50 0.4				W W/ $^\circ\text{C}$
Operating and Storage Junction Temperature Range	T_J, T_{STG}	-55 to +150				$^\circ\text{C}$

THERMAL CHARACTERISTICS

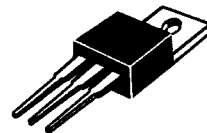
Characteristic	Symbol	Max	Unit
Thermal Resistance Junction to Case	$R_{\theta JC}$	2.5	$^\circ\text{C/W}$



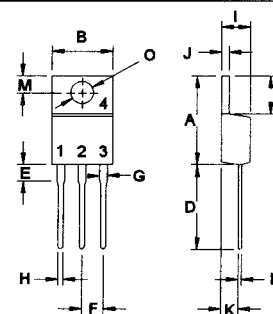
NPN
D44VM
Series

PNP
D45VM
Series

8 AMPERE
COMPLEMENTARY SILICON
POWER TRANSISTORS
30-80 VOLTS
50 WATTS



TO-220



PIN 1. BASE
2. COLLECTOR
3. EMITTER
4. COLLECTOR (CASE)

DIM	MILLIMETERS	
	MIN	MAX
A	14.68	15.31
B	9.78	10.42
C	5.01	6.52
D	13.06	14.62
E	3.57	4.07
F	2.42	3.66
G	1.12	1.36
H	0.72	0.96
I	4.22	4.98
J	1.14	1.38
K	2.20	2.97
L	0.33	0.55
M	2.48	2.98
O	3.70	3.90

ELECTRICAL CHARACTERISTICS ($T_c = 25^\circ\text{C}$ unless otherwise noted)

Characteristic	Symbol	Min	Max	Unit
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OFF CHARACTERISTICS

Collector-Base Cutoff Current ($V_{CEV} = \text{Rated Value}$, $v_{BE(OFF)} = 4.0\text{ V}$) ($V_{CEV} = \text{Rated Value}$, $v_{BE(OFF)} = 4.0\text{ V}$, $T_c = 100^\circ\text{C}$)	I_{CEV}		10 100	μA
Emitter-Base Cutoff Current ($V_{BE} = 7.0\text{ V}$, $I_C = 0$)	I_{EBO}		10	μA

ON CHARACTERISTICS(1)

DC Current Gain ($I_C = 4.0\text{ A}$, $V_{CE} = 1.0\text{ V}$) ($I_C = 6.0\text{ A}$, $V_{CE} = 1.0\text{ V}$) ($I_C = 8.0\text{ A}$, $V_{CE} = 1.0\text{ V}$)	D44VM Series D45VM Series D44VM Series D45VM Series	h_{FE}	40 20 20 10		
Collector-Emitter Saturation Voltage ($I_C = 4.0\text{ A}$, $I_B = 400\text{ mA}$) ($I_C = 8.0\text{ A}$, $I_B = 800\text{ mA}$) ($I_C = 8.0\text{ A}$, $I_B = 800\text{ mA}$, $T_c = 100^\circ\text{C}$)		$V_{CE(sat)}$		0.8 1.2 1.5	V
Base-Emitter Saturation Voltage ($I_C = 8.0\text{ A}$, $I_B = 800\text{ mA}$) ($I_C = 8.0\text{ A}$, $I_B = 800\text{ mA}$, $T_c = 100^\circ\text{C}$)		$V_{BE(sat)}$		1.5 1.6	V

DYAMIC CHARATERISTICS

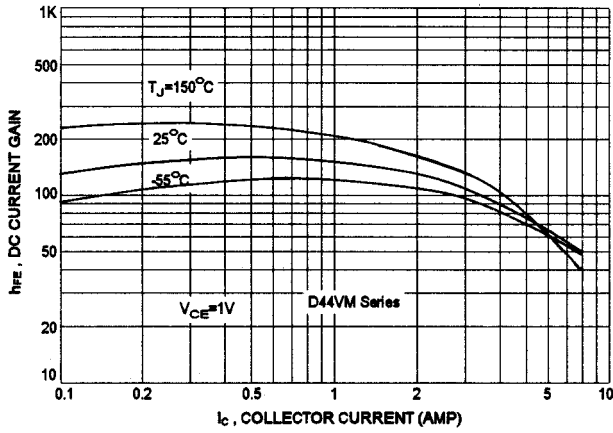
Current-Gain Bandwidth Product (2) ($I_C = 100\text{ mA}$, $V_{CE} = 10\text{ V}$, $f = 1.0\text{ MHz}$)	f_T	30(typ)		MHz
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SWITCHING CHARATERISTICS

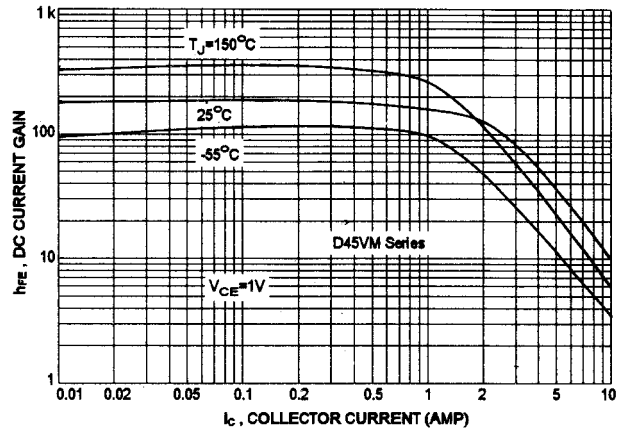
Rise Time	$V_{CC} = 30\text{ V}$	D44VM Series D45VM Series	t_r		0.5 0.6	μs
Storage Time	$I_C = 8\text{ A}$,	D44VM Series D45VM Series	t_s		1.3 1.1	μs
Fall Time	$I_{B1} = -I_{B2} = 800\text{ mA}$	D44VM Series D45VM Series	t_f		0.4 0.5	μs

(1) Pulse Test: Pulse width = $300\text{ }\mu\text{s}$, Duty Cycle $\leq 2.0\%$ (2) $f_T = \frac{1}{h_{fe}} \cdot f_{test}$

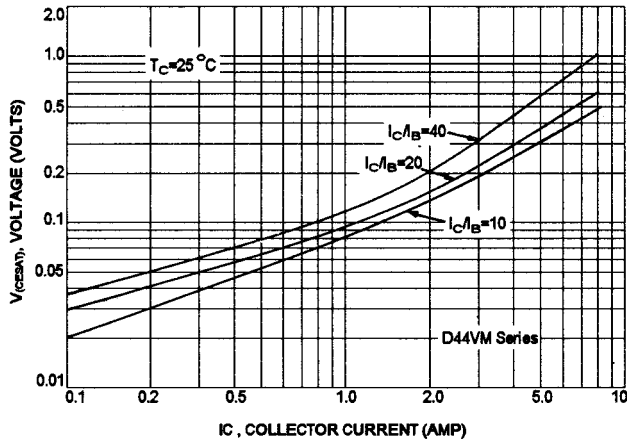
DC CURRENT GAIN



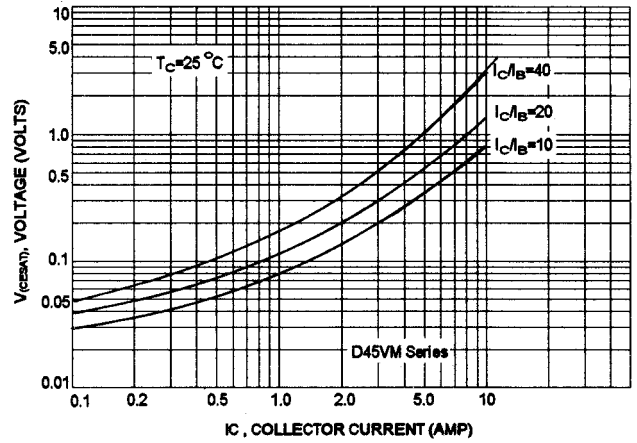
DC CURRENT GAIN



COLLECTOR-EMITTER SATURATION VOLTAGE

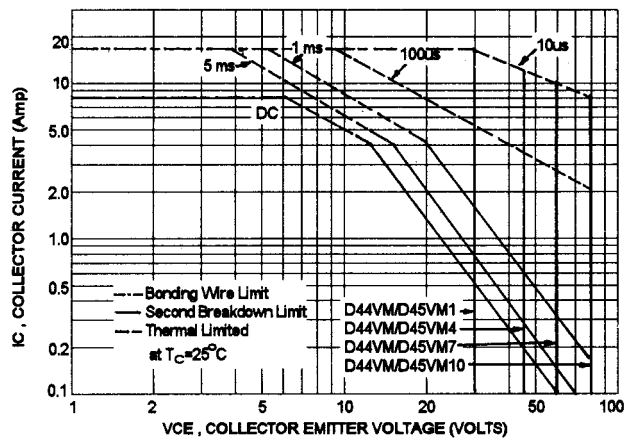


COLLECTOR-EMITTER SATURATION VOLTAGE



D44VM/D45VM

FORWARD-BIAS SAFE OPERATING AREA



D44VM/D45VM

REVERSE-BIAS SAFE OPERATING AREA

