

MOSPEC

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:

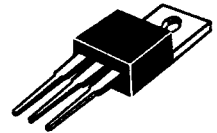
- * Very Low Collector Saturation Voltage
- * Excellent Linearity
- * Fast Switching
- * PNP Values are Negative, Observe Proper Polarity.

NPN	PNP
D44VM	D45VM
Series	Series

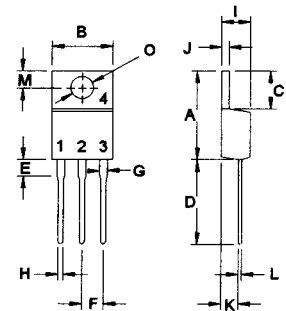
**8 AMPERE
COMPLEMENTARY SILICON
POWER TRANSISTORS
30-80 VOLTS
50 WATTS**

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 @ $T_C = 25^\circ C$ Derate above $25^\circ C$	P_D	50 0.4				W W/ $^\circ C$
Operating and Storage Junction Temperature Range	T_J, T_{STG}	-55 to +150				$^\circ C$



TO-220



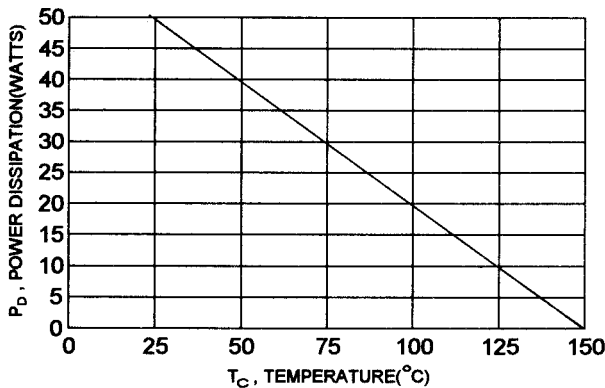
PIN 1.BASE
2.COLLECTOR
3.EMITTER
4.COLLECTOR(CASE)

THERMAL CHARACTERISTICS

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

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

FIGURE -1 POWER DERATING



D44VM Series NPN / D45VM Series PNP

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	hFE	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

DYNAMIC CHARACTERISTICS

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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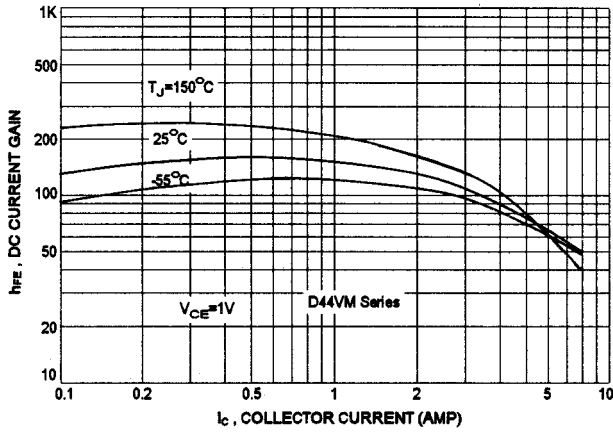
SWITCHING CHARACTERISTICS

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

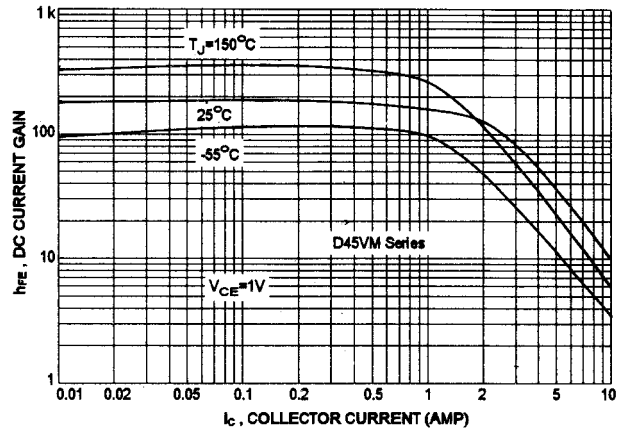
(1) Pulse Test: Pulse width = 300 μs , Duty Cycle $\leq 2.0\%$

(2) $f_T = |h_{re}| \cdot f_{max}$

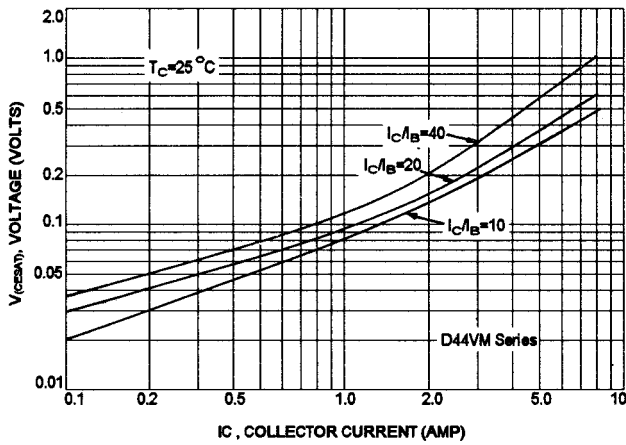
DC CURRENT GAIN



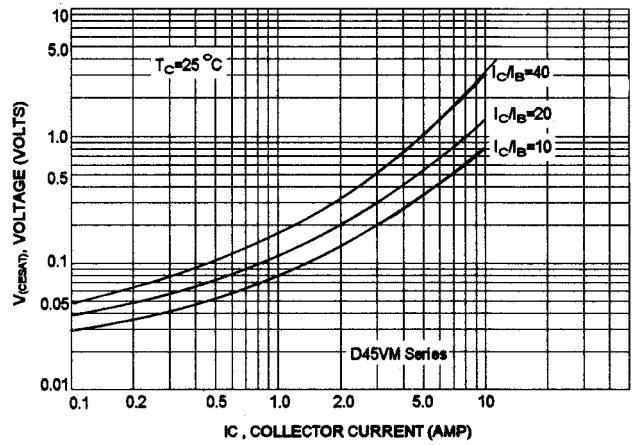
DC CURRENT GAIN



COLLECTOR-EMITTER SATURATION VOLTAGE

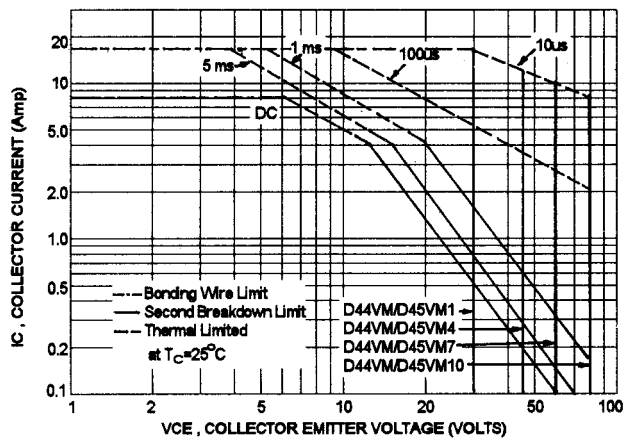


COLLECTOR-EMITTER SATURATION VOLTAGE



D44VM/D45VM

FORWARD-BIAS SAFE OPERATING AREA



D44VM/D45VM

REVERSE-BIAS SAFE OPERATING AREA

