

Complementary Silicon Power Transistors

D44H Series (NPN), D45H Series (PNP)

These series of plastic, silicon NPN and PNP power transistors can be used as general purpose power amplification and switching such as output or driver stages in applications such as switching regulators, converters and power amplifiers.

Features

- Low Collector-Emitter Saturation Voltage
- Fast Switching Speeds
- Complementary Pairs Simplifies Designs
- These Devices are Pb-Free and are RoHS Compliant*

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Collector–Emitter Voltage D44H8, D45H8 D44H11, D45H11	V _{CEO}	60 80	Vdc
Emitter Base Voltage	V _{EB}	5.0	Vdc
Collector Current - Continuous	I _C	10	Adc
Collector Current - Peak (Note 1)	I _{CM}	20	Adc
Total Power Dissipation @ T _C = 25°C @ T _A = 25°C	P _D	70 2.0	W
Operating and Storage Junction Temperature Range	T _J , T _{stg}	-55 to +150	°C

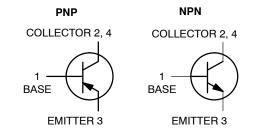
Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.

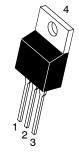
1. Pulse Width \leq 6.0 ms, Duty Cycle \leq 50%.

THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Thermal Resistance, Junction-to-Case	$R_{\theta JC}$	1.8	°C/W
Thermal Resistance, Junction-to-Ambient	$R_{\theta JA}$	62.5	°C/W
Maximum Lead Temperature for Soldering Purposes: 1/8" from Case for 5 Seconds	TL	275	°C

10 AMP COMPLEMENTARY SILICON POWER TRANSISTORS 60, 80 VOLTS





TO-220

D4xHyyG AYWW

MARKING

DIAGRAM

CASE 221A

STYLE 1

A = Assembly Location
Y = Year
WW = Work Week
G = Pb-Free Package

ORDERING INFORMATION

Device	Package	Shipping
D44H8G	TO-220 (Pb-Free)	50 Units/Rail
D44H11G	TO-220 (Pb-Free)	50 Units/Rail
D45H8G	TO-220 (Pb-Free)	50 Units/Rail
D45H11G	TO-220 (Pb-Free)	50 Units/Rail

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^{*}For additional information on our Pb-Free strategy and soldering details, please download the **onsemi** Soldering and Mounting Techniques Reference Manual, SOLDERRM/D.

D44H Series (NPN), D45H Series (PNP)

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

Characteristic		Symbol	Min	Тур	Max	Unit
OFF CHARACTERISTICS				!	!	-
Collector–Emitter Sustaining Voltage (I _C = 30 mAdc, I _B = 0 Adc)	D44H8, D45H8 944H11, D45H11	V _{CEO(sus)}	60 80	- -	_ _	Vdc
Collector Cutoff Current (V_{CE} = Rated V_{CEO} , V_{BE} = 0)		I _{CES}	_	-	10	μΑ
Emitter Cutoff Current (V _{EB} = 5.0 Vdc)		I _{EBO}	-	-	10	μΑ
ON CHARACTERISTICS						
DC Current Gain $(V_{CE} = 1.0 \text{ Vdc}, I_{C} = 2.0 \text{ Adc})$ $(V_{CE} = 1.0 \text{ Vdc}, I_{C} = 4.0 \text{ Adc})$		h _{FE}	60 40	- -	- -	-
Collector-Emitter Saturation Voltage (I _C = 8.0 Adc, I _B = 0.4 Adc)		V _{CE(sat)}	-	-	1.0	Vdc
Base–Emitter Saturation Voltage (I _C = 8.0 Adc, I _B = 0.8 Adc)		V _{BE(sat)}	-	-	1.5	Vdc
DYNAMIC CHARACTERISTICS						
Collector Capacitance (V _{CB} = 10 Vdc, f _{test} = 1.0 MHz)	D44H Series D45H Series	C _{cb}	<u>-</u> -	90 160	_ _	pF
Gain Bandwidth Product (I _C = 0.5 Adc, V _{CE} = 10 Vdc, f = 20 MHz)	D44H Series D45H Series	f _T	- -	50 40	<u>-</u> -	MHz
SWITCHING TIMES						
Delay and Rise Times (I _C = 5.0 Adc, I _{B1} = 0.5 Adc)	D44H Series D45H Series	t _d + t _r	- -	300 135	_ _	ns
Storage Time ($I_C = 5.0 \text{ Adc}$, $I_{B1} = I_{B2} = 0.5 \text{ Adc}$)	D44H Series D45H Series	t _s	- -	500 500	- -	ns
Fall Time (I _C = 5.0 Adc, I _{B1} = 102 = 0.5 Adc)	D44H Series D45H Series	t _f	- -	140 100	- -	ns

Product parametric performance is indicated in the Electrical Characteristics for the listed test conditions, unless otherwise noted. Product performance may not be indicated by the Electrical Characteristics if operated under different conditions.

D44H Series (NPN), D45H Series (PNP)

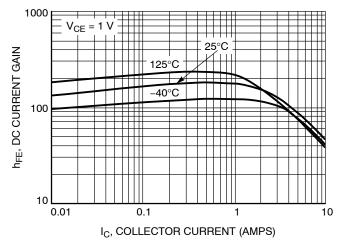


Figure 1. D44H11 DC Current Gain

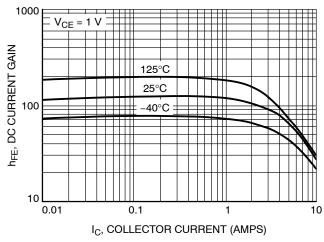


Figure 2. D45H11 DC Current Gain

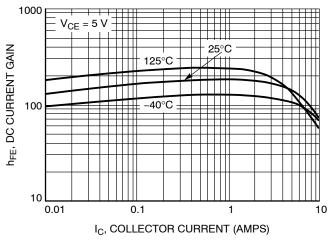


Figure 3. D44H11 DC Current Gain

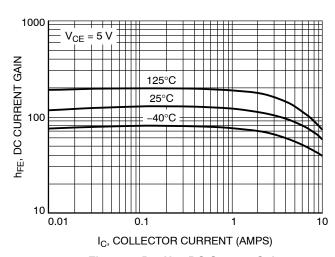


Figure 4. D45H11 DC Current Gain

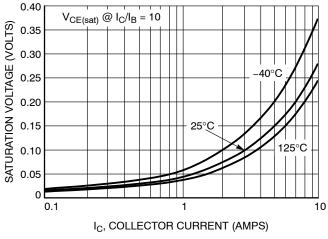


Figure 5. D44H11 ON-Voltage

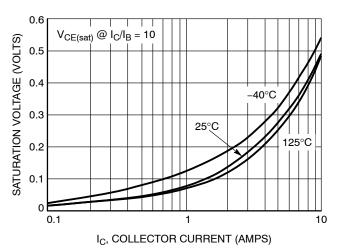


Figure 6. D45H11 ON-Voltage

D44H Series (NPN), D45H Series (PNP)

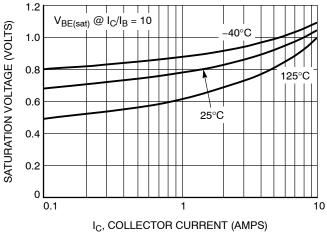


Figure 7. D44H11 ON-Voltage

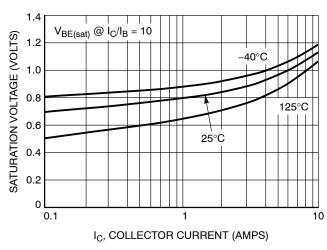


Figure 8. D45H11 ON-Voltage

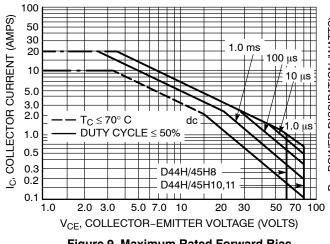


Figure 9. Maximum Rated Forward Bias Safe Operating Area

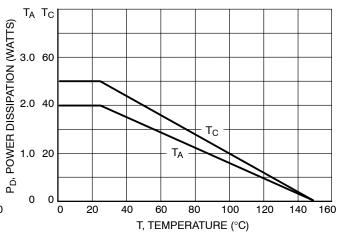


Figure 10. Power Derating

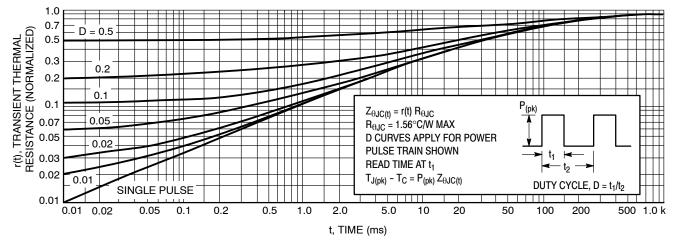


Figure 11. Thermal Response

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