

isc Silicon NPN Power Transistors

D44Q1/3/5

DESCRIPTION

- Collector-Emitter Sustaining Voltage-
: $V_{CEO(SUS)} = 125V(\text{Min})$ - D44Q1
= $175V(\text{Min})$ - D44Q3
= $225V(\text{Min})$ - D44Q5
- High Switching Speed
- Low Saturation Voltage

APPLICATIONS

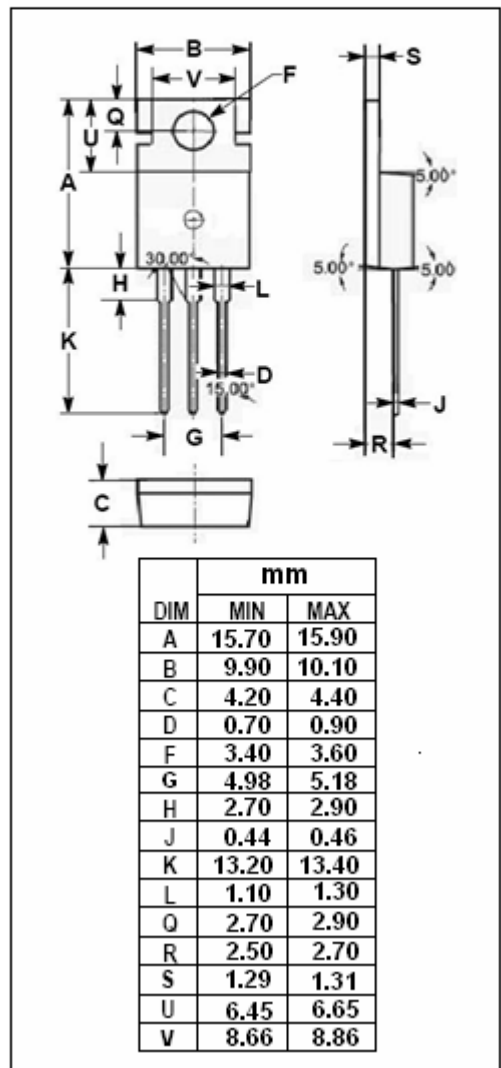
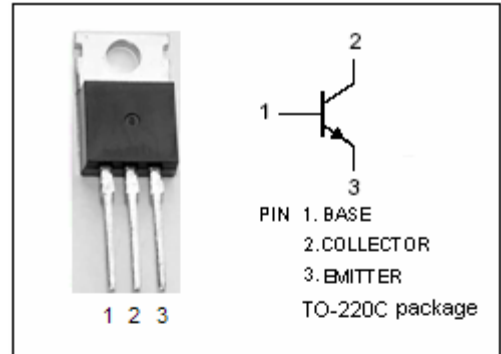
- Designed for linear and switching applications.

ABSOLUTE MAXIMUM RATINGS($T_a=25^\circ\text{C}$)

SYMBOL	PARAMETER	VALUE	UNIT	
V_{CBO}	Collector-Base Voltage	D44Q1	200	V
		D44Q3	250	
		D44Q5	300	
V_{CEO}	Collector-Emitter Voltage	D44Q1	125	V
		D44Q3	175	
		D44Q5	225	
V_{EBO}	Emitter-Base Voltage	7	V	
I_C	Collector Current-Continuous	4	A	
P_C	Collector Power Dissipation @ $T_C=25^\circ\text{C}$	31.25	W	
P_C	Collector Power Dissipation @ $T_a=25^\circ\text{C}$	1.67		
T_J	Junction Temperature	150	$^\circ\text{C}$	
T_{stg}	Storage Temperature Range	-65~150	$^\circ\text{C}$	

THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	MAX	UNIT
$R_{th\ j-c}$	Thermal Resistance, Junction to Case	4	$^\circ\text{C/W}$
$R_{th\ j-a}$	Thermal Resistance, Junction to Ambient	75	$^\circ\text{C/W}$



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ELECTRICAL CHARACTERISTICS

 $T_C=25^\circ\text{C}$ unless otherwise specified

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP.	MAX	UNIT	
$V_{CEO(SUS)}$	Collector-Emitter Sustaining Voltage	D44Q1	$I_C=10\text{mA}; I_B=0$			V	
		D44Q3					125
		D44Q5					175
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	$I_C=2\text{A}; I_B=0.2\text{A}$			1.0	V	
$V_{BE(sat)}$	Base-Emitter Saturation Voltage	$I_C=2\text{A}; I_B=0.2\text{A}$			1.3	V	
I_{CBO}	Collector Cutoff Current	D44Q1			10	μA	
		D44Q3					$V_{CB}=200\text{V}; I_E=0$
		D44Q5					$V_{CB}=250\text{V}; I_E=0$
h_{FE-1}	DC Current Gain	$I_C=0.2\text{A}; V_{CE}=10\text{V}$	30				
h_{FE-2}	DC Current Gain	$I_C=2\text{A}; V_{CE}=10\text{V}$	20				
f_T	Current-Gain—Bandwidth Product	$I_C=0.1\text{A}; V_{CE}=10\text{V}$		20		MHz	
C_{OB}	Output Capacitance	$I_E=0; V_{CB}=10\text{V}; f=1\text{MHz}$		32		pF	

Switching Times

t_{on}	Delay Time	$V_{CC}=50\text{V}$ $I_C=1\text{A}; I_{B1}=-I_{B2}=0.1\text{A}$			0.4	μs
t_{stg}	Storage Time		5		2.0	μs
t_f	Fall Time				1.7	μs