

**isc Silicon NPN Power Transistors**
**D44Q1/3/5**
**DESCRIPTION**

- Collector-Emitter Sustaining Voltage-  
:  $V_{CEO(SUS)} = 125V(\text{Min})$ - D44Q1  
= 175V(Min)- D44Q3  
= 225V(Min)- D44Q5
- High Switching Speed
- Low Saturation Voltage
- Minimum Lot-to-Lot variations for robust device performance and reliable operation

**APPLICATIONS**

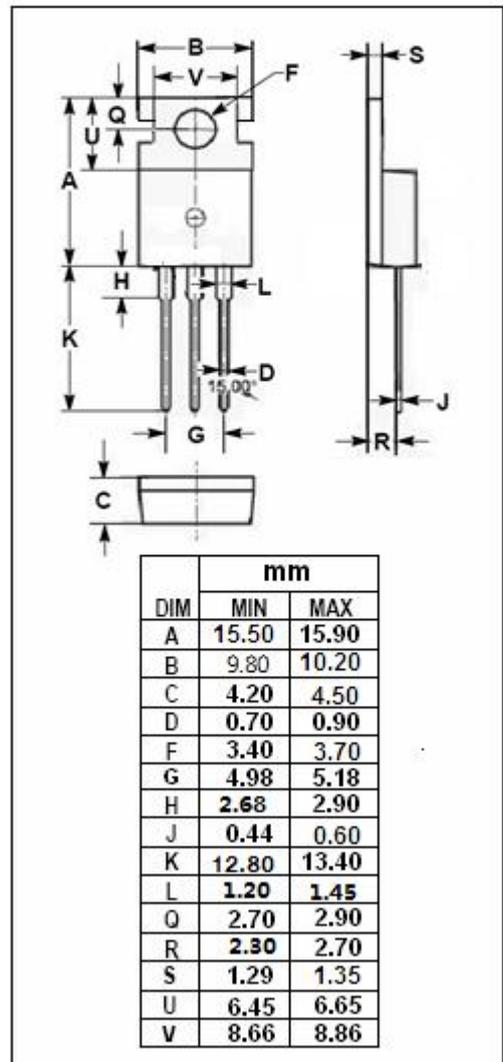
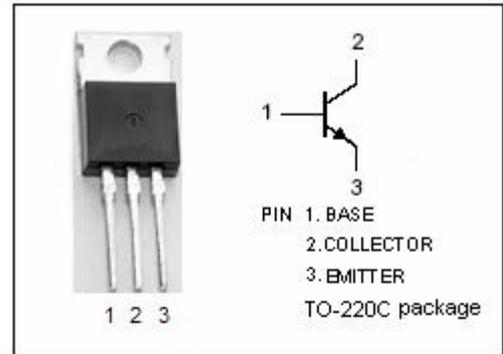
- Designed for linear and switching applications.

**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	
$V_{CE(SUS)}$	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	$\mu\text{A}$	
		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	$\mu\text{s}$
$t_{stg}$	Storage Time		5		2.0	$\mu\text{s}$
$t_f$	Fall Time				1.7	$\mu\text{s}$

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