

## isc Silicon PNP Power Transistors

## D45VH Series

## DESCRIPTION

- Low Saturation Voltage
- Fast Switching Speed
- Complement to Type D44VH Series
- Minimum Lot-to-Lot variations for robust device performance and reliable operation

## APPLICATIONS

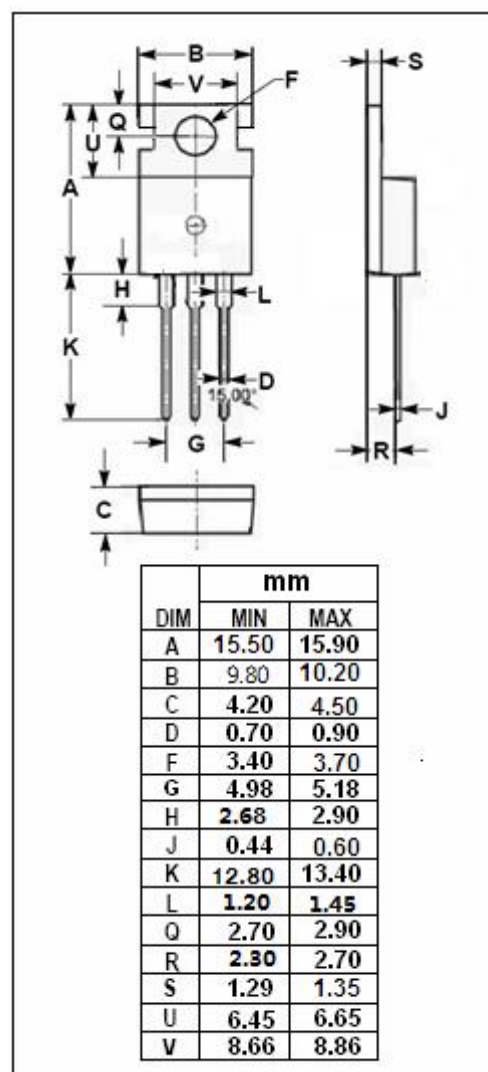
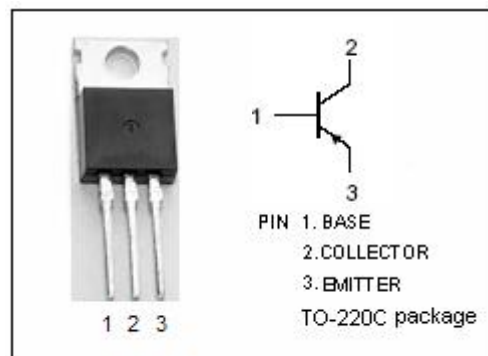
- Designed for high-speed switching applications, such as switching regulators and high frequency inverters. They are also well-suited for drivers for high power switching circuits.

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

SYMBOL	PARAMETER	VALUE	UNIT
$V_{CEV}$	Collector-Emitter Voltage	D45VH 1	-50
		D45VH 4	-70
		D45VH 7	-80
		D45VH 10	-100
$V_{CEO}$	Collector-Emitter Voltage	D45VH 1	-30
		D45VH 4	-45
		D45VH 7	-60
		D45VH 10	-80
$V_{EBO}$	Emitter-Base Voltage	-5	V
$I_C$	Collector Current-Continuous	-15	A
$I_{CM}$	Collector Current-Peak	-20	A
$P_C$	Collector Power Dissipation @ $T_C=25^{\circ}\text{C}$	83	W
$T_j$	Junction Temperature	150	$^{\circ}\text{C}$
$T_{stg}$	Storage Temperature Range	-55~150	$^{\circ}\text{C}$

## THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	MAX	UNIT
$R_{th\ j-c}$	Thermal Resistance, Junction to Case	1.5	$^{\circ}\text{C/W}$
$R_{th\ j-a}$	Thermal Resistance, Junction to Ambient	62.5	$^{\circ}\text{C/W}$



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## ELECTRICAL CHARACTERISTICS

T<sub>C</sub>=25°C unless otherwise specified

SYMBOL	PARAMETER		CONDITIONS	MIN	TYP.	MAX	UNIT
V <sub>CEO(SUS)</sub>	Collector-Emitter Sustaining Voltage	D45VH 1	I <sub>C</sub> = -25mA ; I <sub>B</sub> = 0	-30			V
		D45VH 4		-45			
		D45VH 7		-60			
		D45VH 10		-80			
V <sub>CE(sat)-1</sub>	Collector-Emitter Saturation Voltage		I <sub>C</sub> = -8A ; I <sub>B</sub> = -0.8A			-1.0	V
V <sub>CE(sat)-2</sub>	Collector-Emitter Saturation Voltage		I <sub>C</sub> = -15A ; I <sub>B</sub> = -3A; T <sub>C</sub> =100°C			-1.5	V
V <sub>BE(sat)</sub>	Base-Emitter Saturation Voltage		I <sub>C</sub> = -8A ; I <sub>B</sub> = -0.8A I <sub>C</sub> = -8A ; I <sub>B</sub> = -0.8A; T <sub>C</sub> =100°C			-1.0 -1.5	V
I <sub>CEV</sub>	Collector Cutoff Current		V <sub>CE</sub> =RatedV <sub>CE</sub> ; V <sub>BE(off)</sub> = -4V V <sub>CE</sub> =RatedV <sub>CE</sub> ; V <sub>BE(off)</sub> = -4V; T <sub>C</sub> =100°C			-10 -100	μA
I <sub>EBO</sub>	Emitter Cutoff Current		V <sub>EB</sub> = -7V; I <sub>C</sub> = 0			-10	μA
h <sub>FE-1</sub>	DC Current Gain		I <sub>C</sub> = -2A ; V <sub>CE</sub> = -1V	35			
h <sub>FE-2</sub>	DC Current Gain		I <sub>C</sub> = -4A ; V <sub>CE</sub> = -1V	20			
C <sub>OB</sub>	Output Capacitance		I <sub>E</sub> = 0; V <sub>CB</sub> = -10V; f <sub>test</sub> = 1.0MHz		275		pF
f <sub>T</sub>	Current-Gain—Bandwidth Product		I <sub>C</sub> = 0.1A; V <sub>CE</sub> = -10V; f <sub>test</sub> = 20MHz		50		MHz

## Switching Times

t <sub>d</sub>	Delay Time	I <sub>C</sub> = -8A; I <sub>B1</sub> = -I <sub>B2</sub> = -0.8A V <sub>CC</sub> = -20V			50	ns
t <sub>r</sub>	Rise Time				250	ns
t <sub>s</sub>	Storage Time				700	ns
t <sub>f</sub>	Fall Time				90	ns

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