

isc Silicon NPN Power Transistor

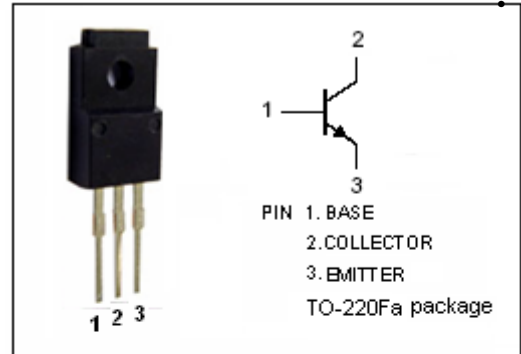
2SC4442

DESCRIPTION

- Collector-Base Breakdown Voltage-  
:  $V_{(BR)CBO} = 500V(\text{Min.})$
- Wide Area of Safe Operation
- High Speed Switching

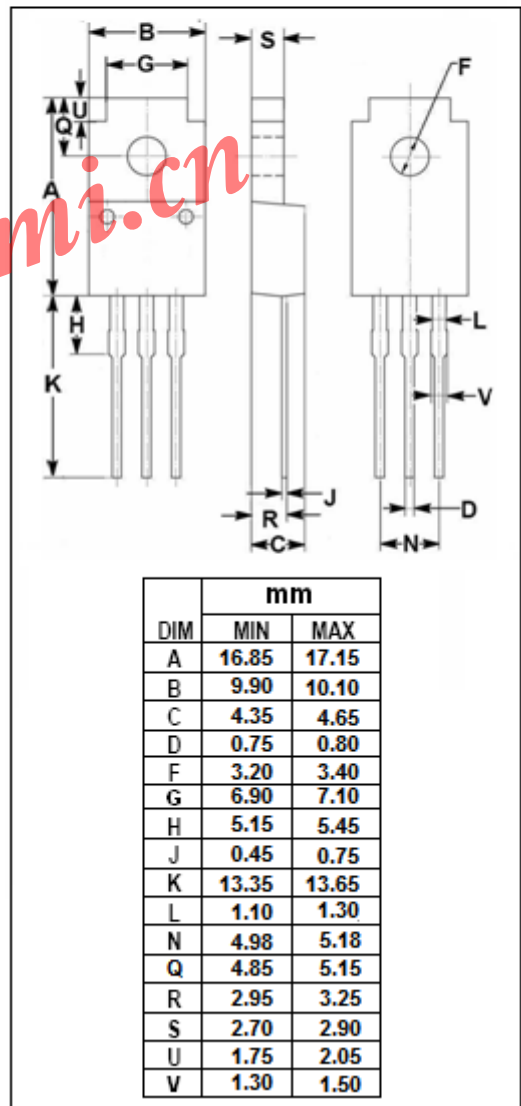
APPLICATIONS

- Designed for high speed switching applications.



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

SYMBOL	PARAMETER	VALUE	UNIT
$V_{CBO}$	Collector-Base Voltage	500	V
$V_{CES}$	Collector-Emitter Voltage	500	V
$V_{CEO}$	Collector-Emitter Voltage	400	V
$V_{EBO}$	Emitter-Base Voltage	7	V
$I_C$	Collector Current-Continuous	4	A
$I_{CM}$	Collector Current-Peak	8	A
$I_B$	Base Current-Continuous	1.6	A
$P_C$	Collector Power Dissipation @ $T_a=25^\circ\text{C}$	2	W
	Collector Power Dissipation @ $T_C=25^\circ\text{C}$	45	
$T_j$	Junction Temperature	150	$^\circ\text{C}$
$T_{stg}$	Storage Temperature Range	-55~150	$^\circ\text{C}$



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## ELECTRICAL CHARACTERISTICS

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

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP.	MAX	UNIT
$V_{(BR)CEO}$	Collector-Emitter Breakdown Voltage	$I_C=10\text{mA}; I_B=0$	400			V
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	$I_C=2\text{A}; I_B=0.4\text{A}$			1.5	V
$V_{BE(sat)}$	Base-Emitter Saturation Voltage	$I_C=2\text{A}; I_B=0.4\text{A}$			1.5	V
$I_{CBO}$	Collector Cutoff Current	$V_{CB}=500\text{V}; I_E=0$			100	$\mu\text{A}$
$I_{EBO}$	Emitter Cutoff Current	$V_{EB}=5\text{V}; I_C=0$			100	$\mu\text{A}$
$h_{FE-1}$	DC Current Gain	$I_C=0.1\text{A}; V_{CE}=5\text{V}$	10			
$h_{FE-2}$	DC Current Gain	$I_C=2\text{A}; V_{CE}=5\text{V}$	6			
$f_T$	Current-Gain—Bandwidth Product	$I_C=0.5\text{A}; V_{CE}=10\text{V}; f=1\text{MHz}$		5		MHz

## Switching Times

$t_{on}$	Turn-on Time	$I_C=2\text{A}; I_{B1}=0.4\text{A}; I_{B2}=-0.8\text{A}; V_{CC}=150\text{V}$			0.5	$\mu\text{s}$
$t_s$	Storage Time				2.0	$\mu\text{s}$
$t_f$	Fall Time				0.1	$\mu\text{s}$