

isc Silicon NPN Power Transistor

2SD1412

DESCRIPTION

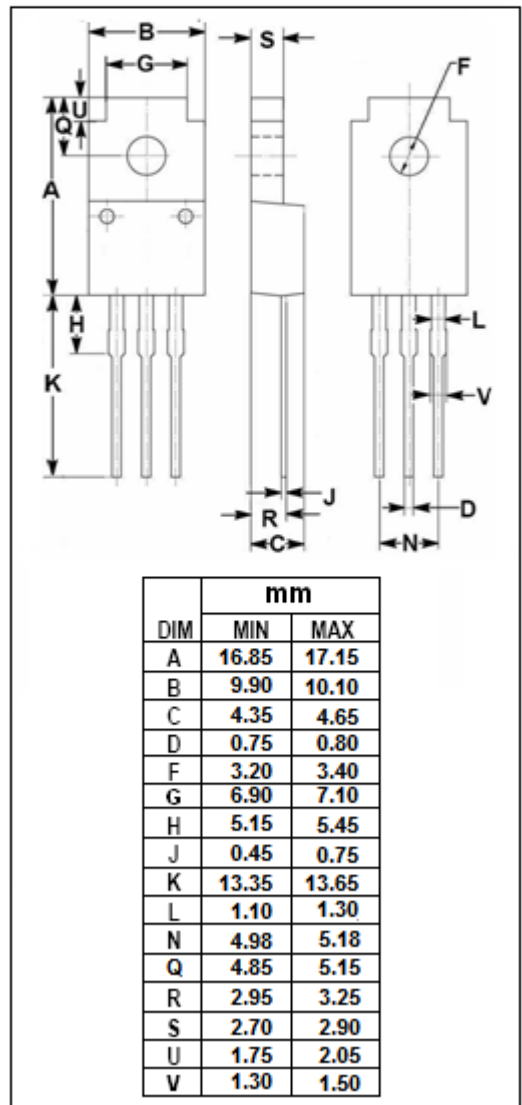
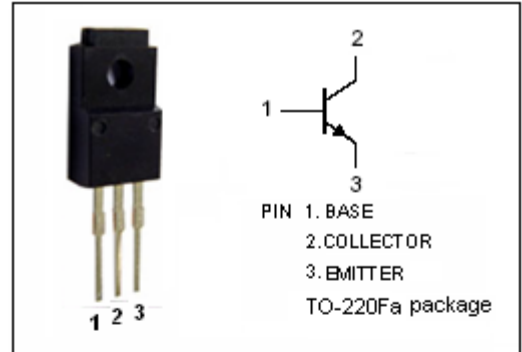
- Low Collector Saturation Voltage  
:  $V_{CE(sat)} = 0.4V(\text{Max}) @ I_C = 4A$
- Collector-Emitter Breakdown Voltage-  
:  $V_{(BR)CEO} = 50V (\text{Min})$
- Complement to Type 2SB1019

APPLICATIONS

- High current switching applications.
- Power amplifier applications.

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

SYMBOL	PARAMETER	VALUE	UNIT
$V_{CBO}$	Collector-Base Voltage	70	V
$V_{CEO}$	Collector-Emitter Voltage	50	V
$V_{EBO}$	Emitter-Base Voltage	5	V
$I_C$	Collector Current-Continuous	7	A
$I_B$	Base Current-Continuous	1	A
$P_C$	Collector Power Dissipation @ $T_a=25^\circ\text{C}$	2	W
	Collector Power Dissipation @ $T_c=25^\circ\text{C}$	30	
$T_J$	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	$I_C=50\text{mA}; I_B=0$	50			V
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	$I_C=4\text{A}; I_B=0.4\text{A}$			0.4	V
$V_{BE(sat)}$	Base-Emitter Saturation Voltage	$I_C=4\text{A}; I_B=0.4\text{A}$			1.2	V
$I_{CBO}$	Collector Cutoff Current	$V_{CB}=70\text{V}; I_E=0$			30	$\mu\text{A}$
$I_{EBO}$	Emitter Cutoff Current	$V_{EB}=5\text{V}; I_C=0$			50	$\mu\text{A}$
$h_{FE-1}$	DC Current Gain	$I_C=1\text{A}; V_{CE}=1\text{V}$	70		240	
$h_{FE-2}$	DC Current Gain	$I_C=4\text{A}; V_{CE}=1\text{V}$	30			
$C_{OB}$	Output Capacitance	$I_E=0; V_{CB}=10\text{V}; f_{\text{test}}=1\text{MHz}$		250		pF
$f_T$	Current-Gain—Bandwidth Product	$I_C=1\text{A}; V_{CE}=4\text{V}$		10		MHz

## Switching Times

$t_{on}$	Turn-on Time	$I_{B1}=-I_{B2}=0.3\text{A};$ $R_L=10\Omega; V_{CC}=30\text{V}$		0.2		$\mu\text{s}$
$t_{stg}$	Storage Time			2.5		$\mu\text{s}$
$t_f$	Fall Time			0.5		$\mu\text{s}$

◆  $h_{FE}$  classifications

O	Y
70-140	120-240