

**isc Silicon NPN Power Transistor**
**2SD1187**
**DESCRIPTION**

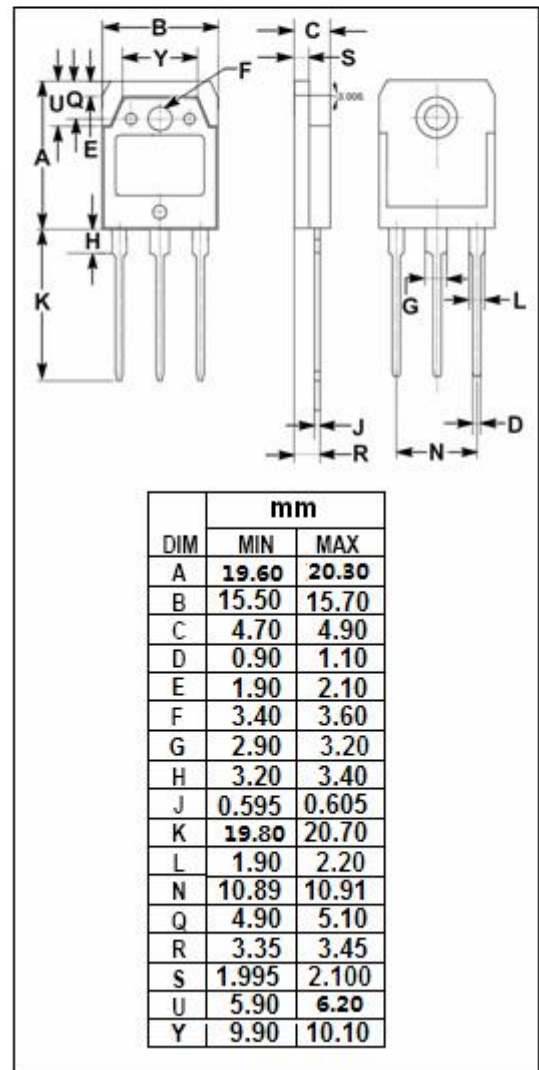
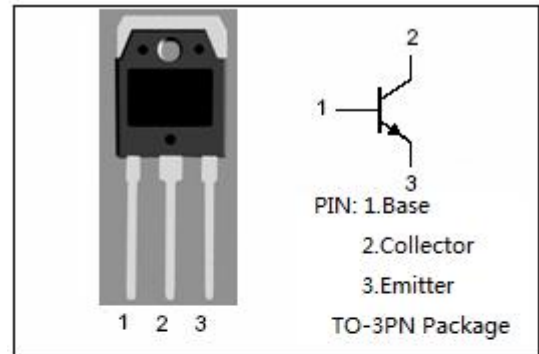
- Collector-Emitter Breakdown Voltage-  
:  $V_{(BR)CEO} = 80V(\text{Min})$
- Good Linearity of  $h_{FE}$
- Collector-Emitter Saturation Voltage-  
:  $V_{CE(sat)} = 0.5V(\text{Max.}) @ I_C = 6.0A$
- Minimum Lot-to-Lot variations for robust device performance and reliable operation

**APPLICATIONS**

- High power switching applications
- DC-DC converter and DC-AC inverter applications

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

SYMBOL	PARAMETER	VALUE	UNIT
$V_{CBO}$	Collector-Base Voltage	100	V
$V_{CEO}$	Collector-Emitter Voltage	80	V
$V_{EBO}$	Emitter-Base Voltage	5	V
$I_C$	Collector Current-Continuous	10	A
$I_B$	Base Current-Continuous	2	A
$P_C$	Collector Power Dissipation @ $T_C=25^\circ\text{C}$	80	W
$T_J$	Junction Temperature	150	$^\circ\text{C}$
$T_{stg}$	Storage Temperature Range	-55~150	$^\circ\text{C}$



## isc Silicon NPN Power Transistor

## 2SD1187

## 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	$I_C=50\text{mA}; I_B=0$	80			V
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	$I_C=6.0\text{A}; I_B=0.3\text{A}$		0.3	0.5	V
$V_{BE(sat)}$	Base-Emitter Saturation Voltage	$I_C=6.0\text{A}; I_B=0.3\text{A}$		0.9	1.4	V
$I_{CBO}$	Collector Cutoff Current	$V_{CB}=100\text{V}; I_E=0$			10	$\mu\text{A}$
$I_{EBO}$	Emitter Cutoff Current	$V_{EB}=5\text{V}; I_C=0$			10	$\mu\text{A}$
$h_{FE-1}$	DC Current Gain	$I_C=1\text{A}; V_{CE}=1\text{V}$	70		240	
$h_{FE-2}$	DC Current Gain	$I_C=6\text{A}; V_{CE}=1\text{V}$	30			
$C_{OB}$	Output Capacitance	$I_E=0; V_{CB}=10\text{V}; f_{test}=1.0\text{MHz}$		350		pF
$f_T$	Current-Gain—Bandwidth Product	$I_C=1\text{A}; V_{CE}=4\text{V}; f_{test}=1.0\text{MHz}$		10		MHz

## Switching times

$t_{on}$	Turn-on Time	$V_{CC}=30\text{V}, I_{B1}=-I_{B2}=0.3\text{A},$		0.5		$\mu\text{s}$
$t_s$	Storage Time			2.5		$\mu\text{s}$
$t_f$	Fall Time			0.8		$\mu\text{s}$

◆  $h_{FE-1}$  Classifications

O	Y
70-140	120-240

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