

## isc Silicon NPN Power Transistor

## MJD200

## DESCRIPTION

- DC Current Gain–  
:  $h_{FE} = 70(\text{Min}) @ I_C = 0.5\text{A}$
- Low Collector Saturation Voltage–  
:  $V_{CE(\text{sat})} = 0.3\text{V}(\text{Max.}) @ I_C = 0.5\text{A}$
- Complement to the PNP MJD210
- Minimum Lot-to-Lot variations for robust device performance and reliable operation

## APPLICATIONS

- Designed for low power audio amplifier and low-current, high-speed switching applications.

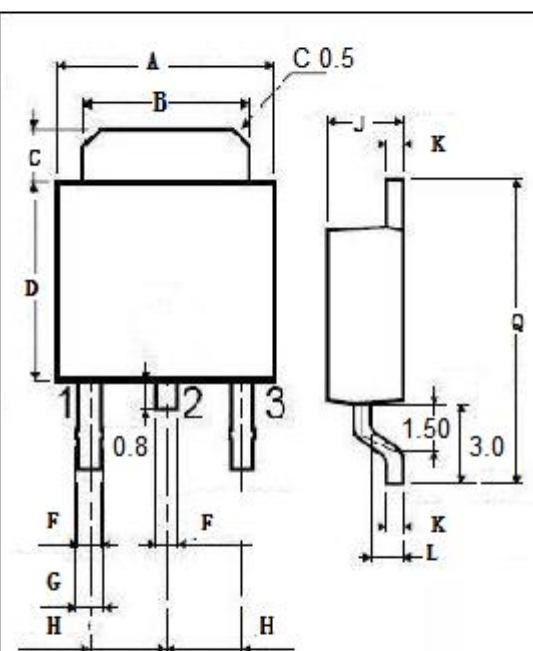
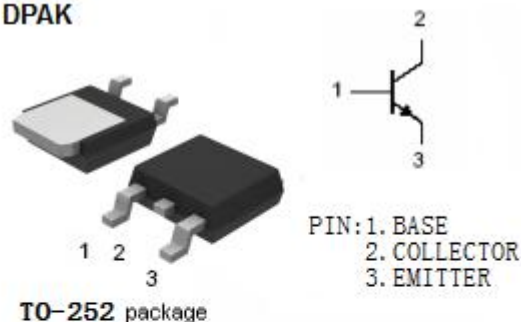
ABSOLUTE MAXIMUM RATINGS( $T_a=25^\circ\text{C}$ )

SYMBOL	PARAMETER	VALUE	UNIT
$V_{CBO}$	Collector-Base Voltage	40	V
$V_{CEO}$	Collector-Emitter Voltage	25	V
$V_{EBO}$	Emitter-Base Voltage	8	V
$I_C$	Collector Current-Continuous	5	A
$I_{CM}$	Collector Current-Peak	10	A
$I_B$	Base Current	1	A
$P_C$	Collector Power Dissipation $T_a=25^\circ\text{C}$	1.4	W
	Collector Power Dissipation $T_C=25^\circ\text{C}$	12.5	
$T_j$	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	10	$^\circ\text{C/W}$
$R_{th\ j-a}$	Thermal Resistance, Junction to Ambient	89.3	$^\circ\text{C/W}$

## DPAK



DIM	mm	
	MIN	MAX
A	6.40	6.60
B	5.20	5.40
C	1.15	1.35
D	5.70	6.10
E	0.65	
F	0.75	
G	2.10	2.50
H	2.10	2.40
J	0.40	0.60
K	0.90	1.10
L	9.90	10.1
Q		

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## ELECTRICAL CHARACTERISTICS

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

SYMBOL	PARAMETER	CONDITIONS	MIN	MAX	UNIT
$V_{CE(SUS)}$	Collector-Emitter Sustaining Voltage	$I_C = 10\text{mA}; I_B = 0$	25		V
$V_{CE(sat)-1}$	Collector-Emitter Saturation Voltage	$I_C = 0.5\text{A}; I_B = 50\text{mA}$		0.3	V
$V_{CE(sat)-2}$	Collector-Emitter Saturation Voltage	$I_C = 2\text{A}; I_B = 0.2\text{A}$		0.75	V
$V_{CE(sat)-3}$	Collector-Emitter Saturation Voltage	$I_C = 5\text{A}; I_B = 1\text{A}$		1.8	V
$V_{BE(sat)}$	Base-Emitter Saturation Voltage	$I_C = 5\text{A}; I_B = 1\text{A}$		2.5	V
$V_{BE(on)}$	Base-Emitter On Voltage	$I_C = 2\text{A}; V_{CE} = 1\text{V}$		1.6	V
$I_{CBO}$	Collector Cutoff Current	$V_{CB} = 40\text{V}; I_E = 0$ $V_{CB} = 40\text{V}; I_E = 0; T_c = 125^\circ\text{C}$		0.1 0.1	$\mu\text{A}$ mA
$I_{EBO}$	Emitter Cutoff Current	$V_{EB} = 8\text{V}; I_C = 0$		0.1	$\mu\text{A}$
$h_{FE-1}$	DC Current Gain	$I_C = 0.5\text{A}; V_{CE} = 1\text{V}$	70		
$h_{FE-2}$	DC Current Gain	$I_C = 2\text{A}; V_{CE} = 1\text{V}$	45	180	
$h_{FE-3}$	DC Current Gain	$I_C = 5\text{A}; V_{CE} = 2\text{V}$	10		
$f_T$	Current-Gain—Bandwidth Product	$I_C = 0.1\text{A}; V_{CE} = 10\text{V}; f_{test} = 10\text{MHz}$	65		MHz
$C_{OB}$	Collector Capacitance	$I_E = 0; V_{CB} = 10\text{V}; f_{test} = 0.1\text{MHz}$	60		pF

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