

SPTECH Product Specification

SPTECH Silicon NPN Power Transistors

MJD44H11

DESCRIPTION

- Low Collector-Emitter Saturation Voltage
: $V_{CE(sat)} = 1.0V(\text{Max}) @ I_C = 8A$
- Fast Switching Speeds
- Complement to Type MJD45H11
- DPAK for Surface Mount Applications
- Minimum Lot-to-Lot variations for robust device performance and reliable operation

APPLICATIONS

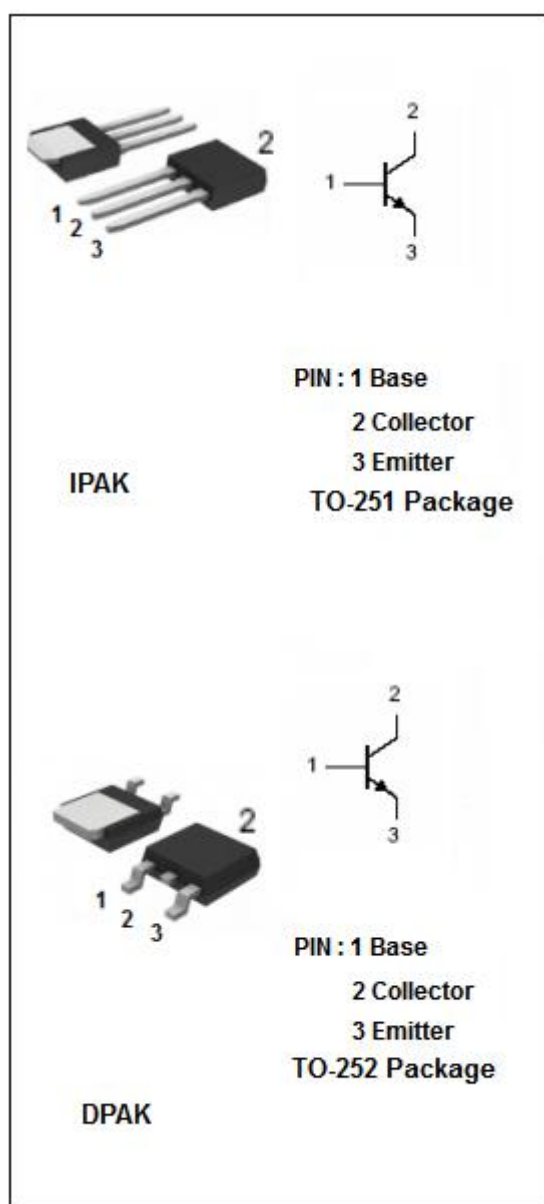
- Designed for general purpose power amplification and switching such as output or driver stages in applications such as switching regulators, converters and power amplifier.

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

SYMBOL	PARAMETER	VALUE	UNIT
V_{CEO}	Collector-Emitter Voltage	80	V
V_{EBO}	Emitter-Base Voltage	5	V
I_C	Collector Current-Continuous	8	A
I_{CM}	Collector Current-Peak	16	A
P_C	Collector Power Dissipation @ $T_C = 25^\circ\text{C}$	20	W
	Collector Power Dissipation @ $T_a = 25^\circ\text{C}$	1.75	
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	6.25	$^\circ\text{C}/\text{W}$
$R_{th\ j-a}$	Thermal Resistance, Junction to Ambient	71.4	$^\circ\text{C}/\text{W}$



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ELECTRICAL CHARACTERISTICS

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

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP	MAX	UNIT
$V_{CEO(SUS)}$	Collector-Emitter Sustaining Voltage	$I_C= 30\text{mA}; I_B= 0$	80		V	
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	$I_C= 8\text{A}; I_B= 0.4\text{A}$			1.0	V
$V_{BE(sat)}$	Base-Emitter Saturation Voltage	$I_C= 8\text{A}; I_B= 0.8\text{A}$			1.5	V
I_{CES}	Collector Cutoff Current	$V_{CE}=\text{Rated } V_{CEO}; V_{BE}= 0$			1.0	μA
I_{EBO}	Emitter Cutoff Current	$V_{EB}= 5\text{V}; I_C= 0$			1.0	μA
h_{FE-1}	DC Current Gain	$I_C= 2\text{A}; V_{CE}= 1\text{V}$	60			
h_{FE-2}	DC Current Gain	$I_C= 4\text{A}; V_{CE}= 1\text{V}$	40			
C_{OB}	Output Capacitance	$V_{CB}= 10\text{V}, f= 1.0\text{MHz}$		45		pF
f_T	Current-Gain—Bandwidth Product	$I_C=0.5\text{A}; V_{CE}= 10\text{V}; f_{test}=20\text{MHz}$		40		MHz

Switching Times; Resistive Load

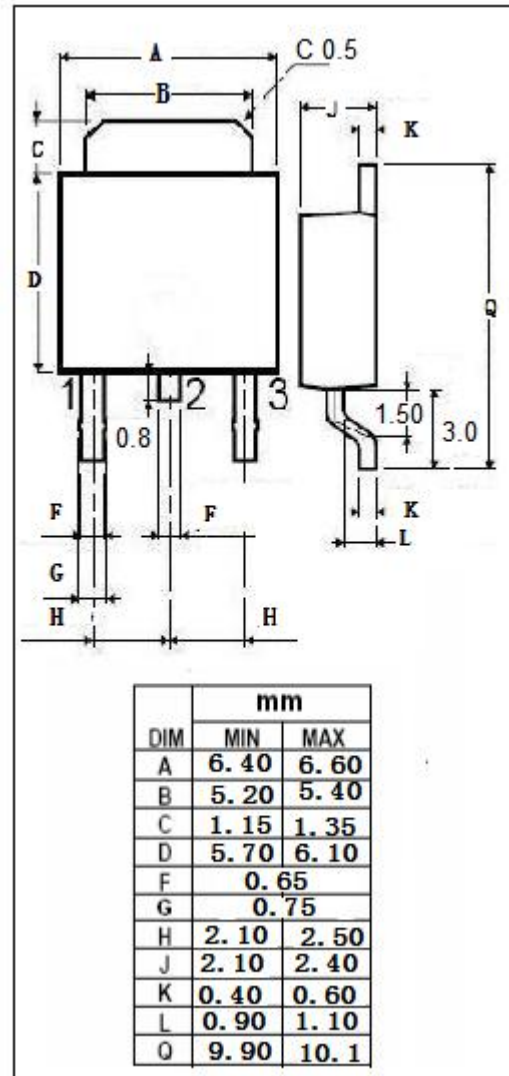
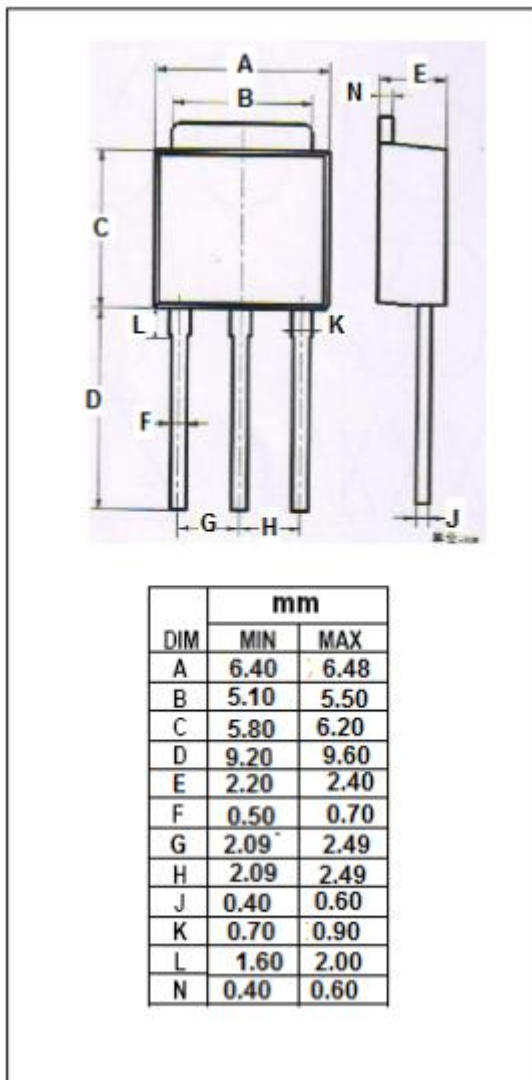
t_d+t_r	Delay and Rise Time	$I_C= -5\text{A};$ $I_{B1}= I_{B2}= -0.5\text{A}$		300		ns
t_s	Storage Time			500		ns
t_f	Fall Time			140		ns

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Outline Drawing



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