

## Plastic-Encapsulate Transistors

DUAL TRANSISTOR (NPN+NPN)

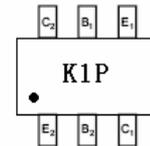
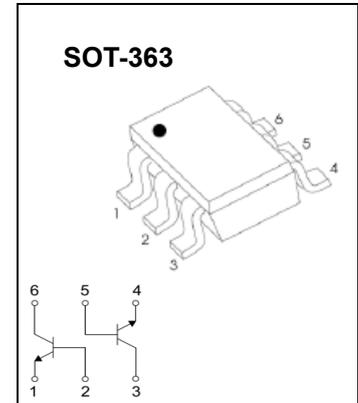
### FEATURE

Complementary PNP Type available MMDT2907ADW

**MARKING: K1P**

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

Symbol	Parameter	Value	Units
$V_{CB0}$	Collector-Base Voltage	75	V
$V_{CE0}$	Collector-Emitter Voltage	40	V
$V_{EB0}$	Emitter-Base Voltage	6	V
$I_c$	Collector Current -Continuous	600	mA
$P_C$	Collector Power Dissipation	200	mW
$T_J$	Junction Temperature	150	$^\circ\text{C}$
$T_{stg}$	Storage Temperature	-55-150	$^\circ\text{C}$



**ELECTRICAL CHARACTERISTICS ( $T_a=25^\circ\text{C}$  unless otherwise specified)**

Parameter	Symbol	Test conditions	Min	Max	Unit
Collector-base breakdown voltage	$V_{(BR)CB0}$	$I_C=10\mu\text{A}, I_E=0$	75		V
Collector-emitter breakdown voltage	$V_{(BR)CE0}$	$I_C=10\text{mA}, I_B=0$	40		V
Emitter-base breakdown voltage	$V_{(BR)EB0}$	$I_E=10\mu\text{A}, I_C=0$	6		V
Collector cut-off current	$I_{CB0}$	$V_{CB}=60\text{V}, I_E=0$		10	nA
Collector cut-off current	$I_{CEX}$	$V_{CE}=60\text{V}, V_{EB(off)}=3\text{V}$		10	nA
Emitter cut-off current	$I_{EBO}$	$V_{EB}=3\text{V}, I_C=0$		10	nA
DC current gain	$h_{FE(1)}$	$V_{CE}=10\text{V}, I_C=0.1\text{mA}$	35		
	$h_{FE(2)}$	$V_{CE}=10\text{V}, I_C=1\text{mA}$	50		
	$h_{FE(3)}$	$V_{CE}=10\text{V}, I_C=10\text{mA}$	75		
	$h_{FE(4)}$	$V_{CE}=10\text{V}, I_C=150\text{mA}$	100	300	
	$h_{FE(5)}$	$V_{CE}=10\text{V}, I_C=500\text{mA}$	40		
	$h_{FE(6)}$	$V_{CE}=1\text{V}, I_C=150\text{mA}$	35		
Collector-emitter saturation voltage	$V_{CE(sat)1}$	$I_C=150\text{mA}, I_B=15\text{mA}$		0.3	V
	$V_{CE(sat)2}$	$I_C=500\text{mA}, I_B=50\text{mA}$		1	V
Base-emitter saturation voltage	$V_{BE(sat)1}$	$I_C=150\text{mA}, I_B=15\text{mA}$	0.6	1.2	V
	$V_{BE(sat)2}$	$I_C=500\text{mA}, I_B=50\text{mA}$		2	V
Transition frequency	$f_T$	$V_{CE}=20\text{V}, I_C=20\text{mA}, f=100\text{MHz}$	300		MHz
Output Capacitance	$C_{ob}$	$V_{CB}=10\text{V}, I_E=0, f=1\text{MHz}$		8	pF
Input Capacitance	$C_{ib}$	$V_{EB}=0.5\text{V}, I_C=0, f=1\text{MHz}$		25	pF
Noise Figure	NF	$V_{CE}=10\text{V}, I_C=100\mu\text{A}, f=1\text{KHz}, R_S=1\text{K}\Omega$		4	dB

### Switching characteristics

Parameter	Symbol	Test conditions	Min	Max	Unit
Delay time	$t_d$	$V_{CC}=30\text{V}, I_C=150\text{mA}, V_{BE(off)}=0.5\text{V}, I_{B1}=15\text{mA}$		10	nS
Rise time	$t_r$			25	nS
Storage time	$t_s$	$V_{CC}=30\text{V}, I_C=150\text{mA}, I_{B1}=-I_{B2}=15\text{mA}$		225	nS
Fall time	$t_f$			60	nS

## Typical Characteristics

