

## SOT-23 Plastic-Encapsulate Transistors

### 3DK2222A TRANSISTOR (NPN)

#### FEATURES

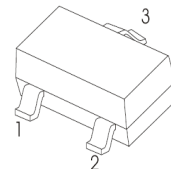
- Epitaxial planar die construction
- Complementary PNP Type available(MMBT2907A)

MARKING: 1P1

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

Symbol	Parameter	Value	Unit
$V_{CBO}$	Collector-Base Voltage	75	V
$V_{CEO}$	Collector-Emitter Voltage	40	V
$V_{EBO}$	Emitter-Base Voltage	6	V
$I_C$	Collector Current -Continuous	600	mA
$P_C$	Collector Power Dissipation	225	mW
$T_j$	Junction Temperature	150	$^\circ\text{C}$
$T_{stg}$	Storage Temperature	-55to+150	$^\circ\text{C}$

SOT-23



1. BASE
2. EMITTER
3. COLLECTOR

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

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Collector-base breakdown voltage	$V_{(BR)CBO}$	$I_C=10\mu\text{A}$ , $I_E=0$	75			V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	$I_C=10\text{mA}$ , $I_B=0$	40			V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	$I_E=10\mu\text{A}$ , $I_C=0$	6			V
Collector cut-off current	$I_{CBO}$	$V_{CB}=70\text{V}$ , $I_E=0$			0.01	$\mu\text{A}$
Collector cut-off current	$I_{CEX}$	$V_{CE}=60\text{V}$ , $V_{BE(off)}=3\text{V}$			0.01	$\mu\text{A}$
Emitter cut-off current	$I_{EBO}$	$V_{EB}=3\text{V}$ , $I_C=0$			0.01	$\mu\text{A}$
DC current gain	$H_{FE(1)}$	$V_{CE}=10\text{V}$ , $I_C=150\text{mA}$	100		300	
	$H_{FE(2)}$	$V_{CE}=10\text{V}$ , $I_C=0.1\text{mA}$	40			
	$H_{FE(3)}$	$V_{CE}=10\text{V}$ , $I_C=500\text{mA}$	42			
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C=500\text{mA}$ , $I_B=50\text{mA}$ $I_C=150\text{mA}$ , $I_B=15\text{mA}$			0.6 0.3	V
Base-emitter saturation voltage	$V_{BE(sat)}$	$I_C=500\text{mA}$ , $I_B=50\text{mA}$			1.2	V
Transition frequency	$f_T$	$V_{CE}=20\text{V}$ , $I_C=20\text{mA}$ $f=100\text{MHz}$	300			MHz
Delay time	$t_d$	$V_{CC}=30\text{V}$ , $V_{BE(off)}=-0.5\text{V}$			10	ns
Rise time	$t_r$	$I_C=150\text{mA}$ , $I_{B1}=15\text{mA}$			25	ns
Storage time	$t_S$	$V_{CC}=30\text{V}$ , $I_C=150\text{mA}$			225	ns
Fall time	$t_f$	$I_{B1}=-I_{B2}=15\text{mA}$			60	ns