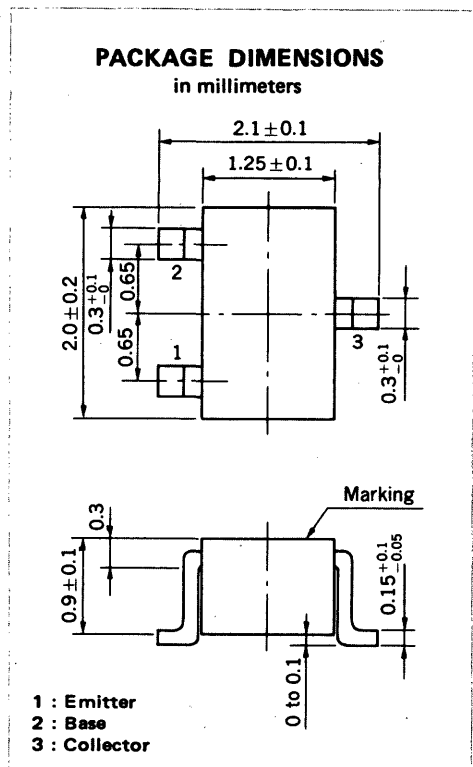
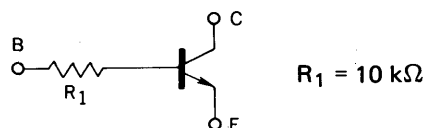


**MEDIUM SPEED SWITCHING  
RESISTOR BUILT-IN TYPE NPN TRANSISTOR**



**FEATURES**

- Resistor Built-in TYPE



- Complementary to GN1A4Z

**ABSOLUTE MAXIMUM RATINGS**

Maximum Voltages and Currents ( $T_a = 25^\circ\text{C}$ )

Collector to Base Voltage	$V_{CBO}$	60	V
Collector to Emitter Voltage	$V_{CEO}$	50	V
Emitter to Base Voltage	$V_{EBO}$	5	V
Collector Current (DC)	$I_C$	100	mA
Collector Current (Pulse)	$I_C$	200	mA

Maximum Power Dissipation

Total Power Dissipation at $25^\circ\text{C}$ Ambient Temperature	$P_T$	150	mW
--	-------	-----	----

Maximum Temperatures

Junction Temperature	$T_j$	150	$^\circ\text{C}$
Storage Temperature Range	$T_{stg}$	-55 to +150	$^\circ\text{C}$

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

CHARACTERISTIC	SYMBOL	MIN.	TYP.	MAX.	UNIT	TEST CONDITIONS
Collector Cutoff Current	$I_{CBO}$			100	nA	$V_{CB} = 50 \text{ V}, I_E = 0$
DC Current Gain	$h_{FE1}^*$	135	340	600		$V_{CE} = 5.0 \text{ V}, I_C = 5.0 \text{ mA}$
DC Current Gain	$h_{FE2}^*$	100	300			$V_{CE} = 5.0 \text{ V}, I_C = 50 \text{ mA}$
Collector Saturation Voltage	$V_{CE(sat)}^*$		0.04	0.2	V	$I_C = 5.0 \text{ mA}, I_B = 0.25 \text{ mA}$
Low-Level Input Voltage	$V_{IL}^*$		0.55	0.5	V	$V_{CE} = 5.0 \text{ V}, I_C = 100 \mu\text{A}$
High-Level Input Voltage	$V_{IH}^*$	2.0	0.8		V	$V_{CE} = 0.2 \text{ V}, I_C = 5.0 \text{ mA}$
Input Resistor	$R_1$	7.0	10	13.0	$\text{k}\Omega$	
Turn-on Time	$t_{on}$			0.2	$\mu\text{s}$	$V_{CC} = 5 \text{ V}, V_{in} = 5 \text{ V}$ $R_L = 1 \text{ k}\Omega$ $PW = 2 \mu\text{s}, \text{Duty Cycle} \leq 2\%$
Storage Time	$t_{stg}$			5.0	$\mu\text{s}$	
Turn-off Time	$t_{off}$			6.0	$\mu\text{s}$	

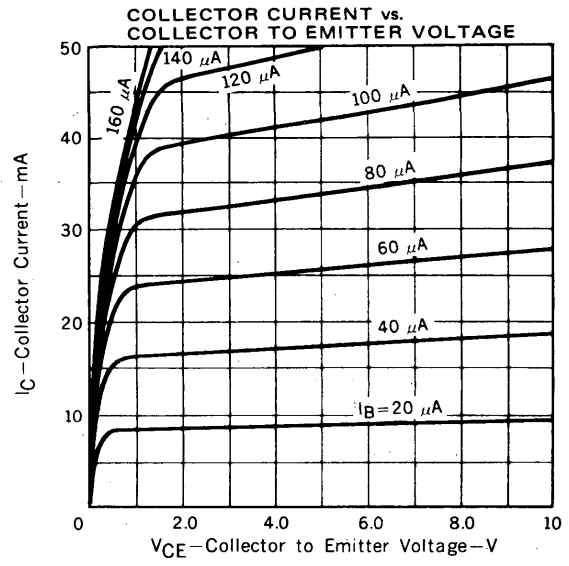
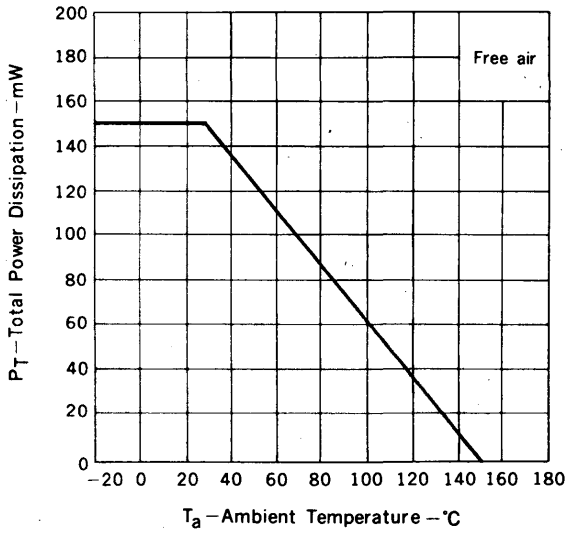
\* Pulsed:  $PW \leq 350 \mu\text{s}, \text{Duty Cycle} \leq 2\%$

**$h_{FE}$  Classification**

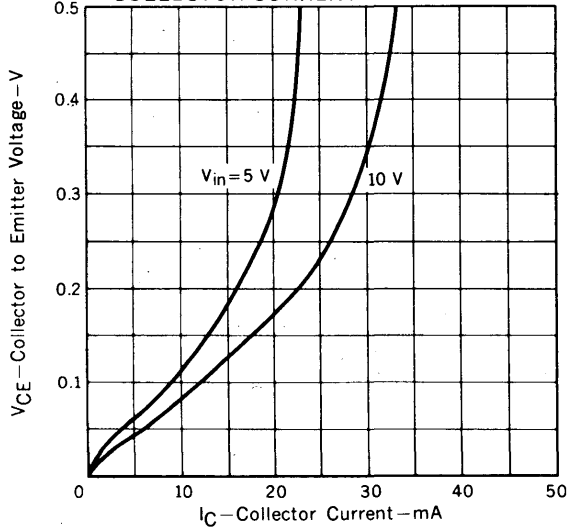
Marking	L67	L68	L69
$h_{FE1}$	135 to 270	200 to 400	300 to 600

TYPICAL CHARACTERISTICS ( $T_a = 25^\circ\text{C}$ )

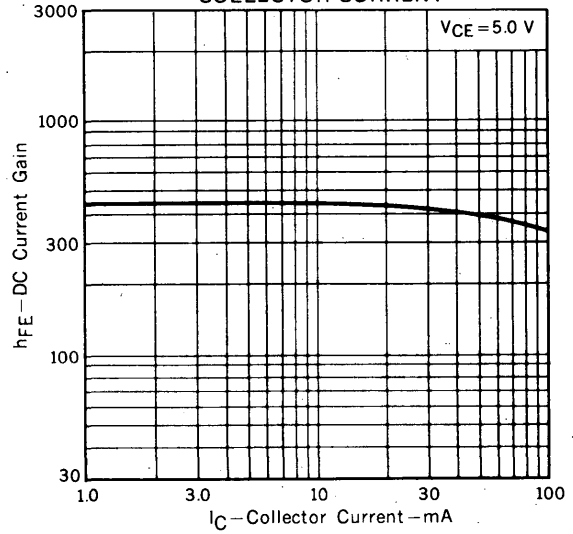
TOTAL POWER DISSIPATION vs. AMBIENT TEMPERATURE



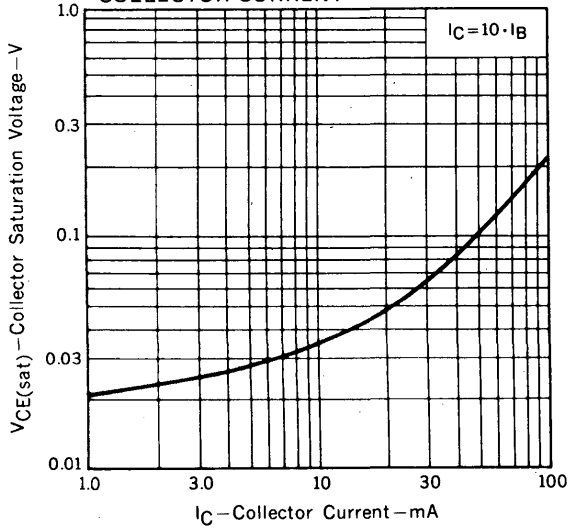
COLLECTOR TO EMITTER VOLTAGE vs. COLLECTOR CURRENT



DC CURRENT GAIN vs. COLLECTOR CURRENT



COLLECTOR SATURATION VOLTAGE vs. COLLECTOR CURRENT



INPUT VOLTAGE vs. COLLECTOR CURRENT

