SLA6024

PNP + NPN Darlington

3-phase motor drive

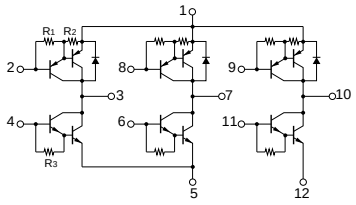
External dimensions Ⓐ ··· SLA (12-pin)

Absolute maximum ratings

(Ta=25°C)

Symbol	Ratings		Unit
	NPN	PNP	
V_{CBO}	60	–60	V
V_{CEO}	60	–60	V
V_{EBO}	6	–6	V
I_C	8	–8	A
I_{CP}	12 (PW≤1ms, Du≤50%)	–12 (PW≤1ms, Du≤50%)	A
I_{FEC}	—	–8	A
I_{FECP}	—	–12	A
I_B	0.5	–0.5	A
P_T	5 (Ta=25°C)		W
	25 (Tc=25°C)		
V_{ISO}	1000 (Between fin and lead pin, AC)		V_{rms}
T_j	150		°C
T_{stg}	–40 to +150		°C
θ_{j-c}	5		°C/W

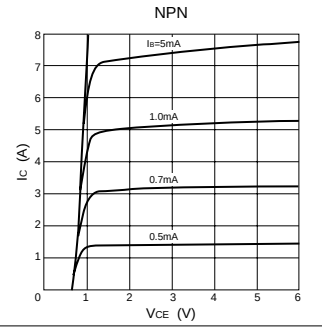
■Equivalent circuit diagram

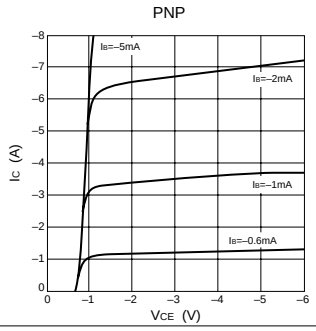


R1: 2kΩ typ R2: 80Ω typ R3: 2kΩ typ

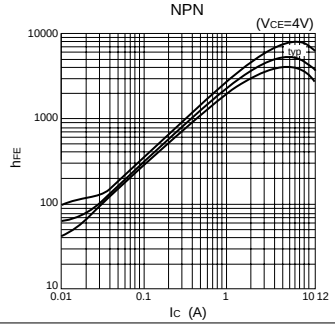
Characteristic curves

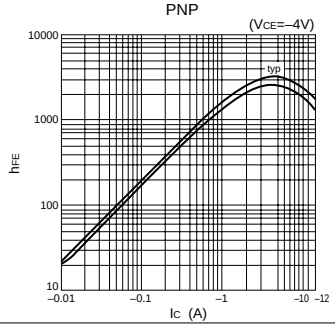
IC-VCE Characteristics (Typical)



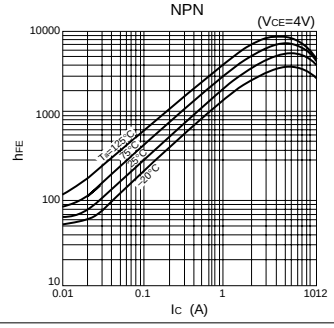


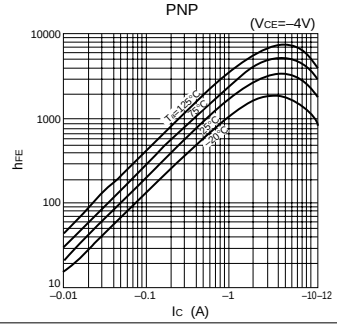
hFE-IC Characteristics (Typical)



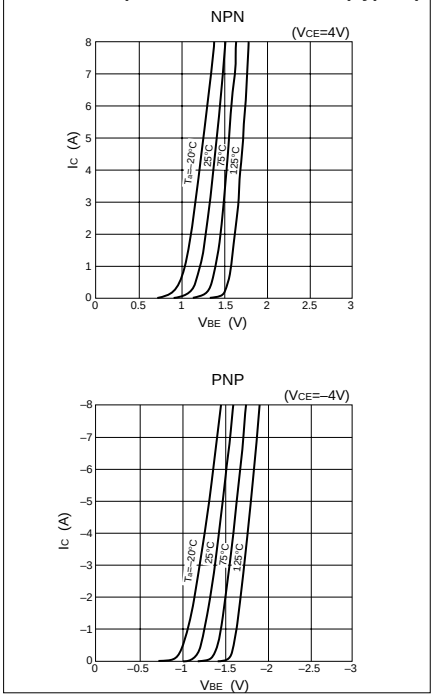


hFE-IC Temperature Characteristics (Typical)





IC-VBE Temperature Characteristics (Typical)



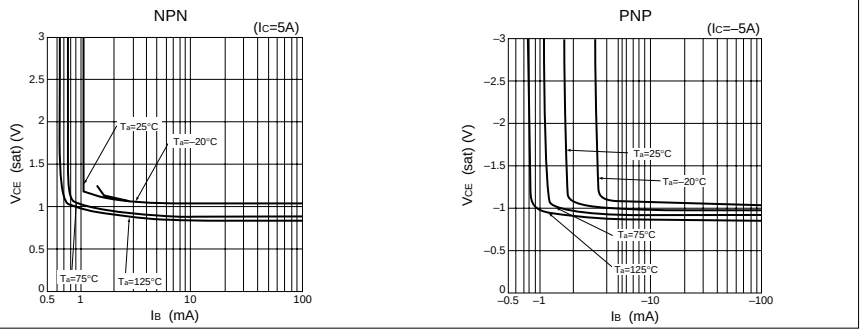
Electrical characteristics

(T_a=25°C)

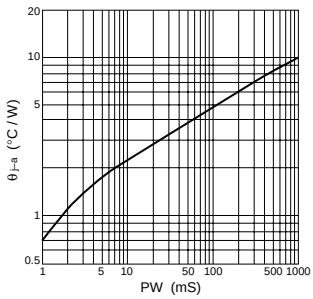
Symbol	NPN					PNP				
	Specification			Unit	Conditions	Specification			Unit	Conditions
	min	typ	max			min	typ	max		
I_{CBO}			10	μA	V_{CB}=60V			–10	μA	V_{CB}=–60V
I_{EBO}			10	μA	V_{EB}=6V			–10	mA	V_{EB}=–6V
V_{CEO}	60			V	I_C=10mA	–60			V	I_C=–10mA
h_{FE}	2000	5000	12000		V_{CE}=4V, I_C=5A	2000	5000	12000		V_{CE}=–4V, I_C=–5A
V_{CE}(sat)			1.5	V	I_C=5A, I_B=10mA			–1.5	V	I_C=–5A, I_B=–10mA
V_{BE}(sat)			2.0	V				–2.0	V	
V_{FEC}		—		V				2.0	V	I_{FEC}=5A
t_{rr}		—		μs			1.0		μs	I_{FEC}=±0.5A
t_{on}		0.5		μs	V_{CC}≒25V,		0.5		μs	V_{CC}≒–25V,
t_{stg}		2.0		μs	I_C=5A,		1.4		μs	I_C=–5A,
t_f		1.2		μs	I_{B1}=–I_{B2}=10mA		0.6		μs	I_{B1}=–I_{B2}=–10mA
f_T		50		MHz	V_{CE}=12V, I_E=–1A		100		MHz	V_{CE}=–12V, I_E=1A
C_{ob}		100		pF	V_{CB}=10V, f=1MHz		130		pF	V_{CB}=–10V, f=1MHz

Characteristic curves

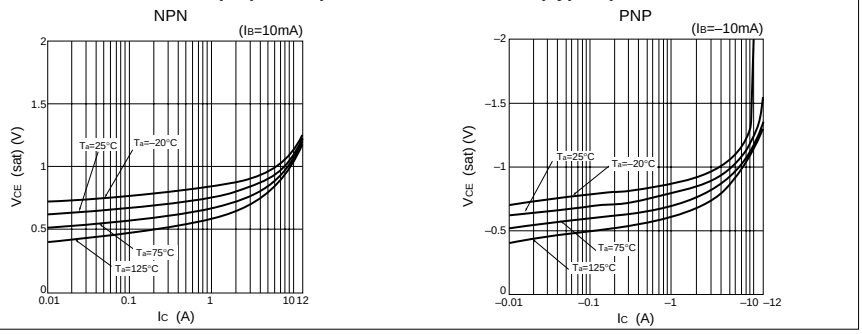
V_{CE}(sat)-I_B Temperature Characteristics (Typical)



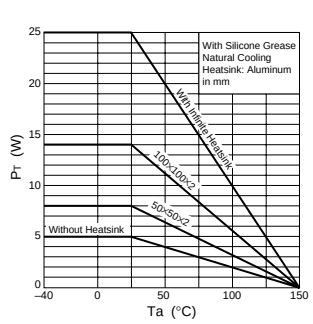
$\theta_{j\text{-}a}$-PW Characteristics



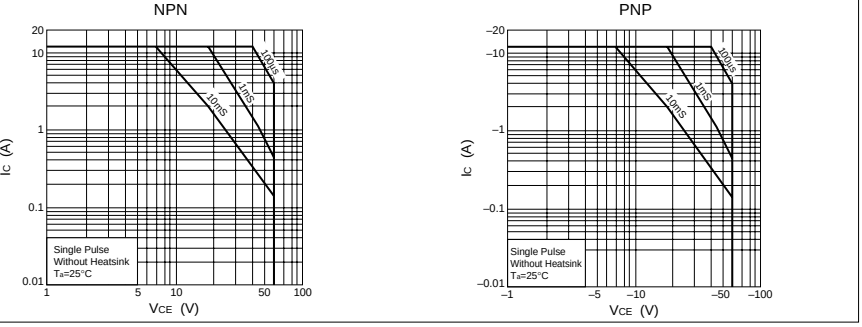
V_{CE}(sat)-I_C Temperature Characteristics (Typical)



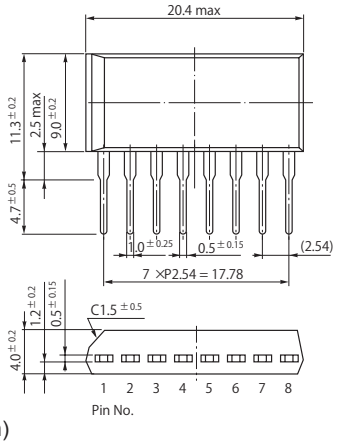
P_T-T_a Characteristics



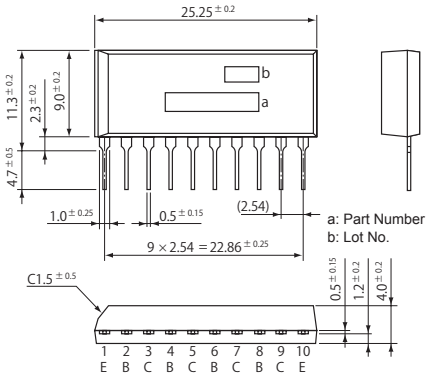
Safe Operating Area (SOA)



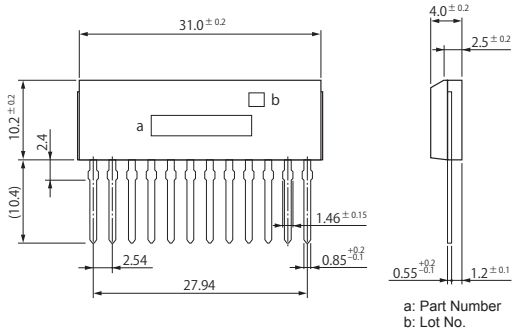
• SIP 8 (STA8Pin)



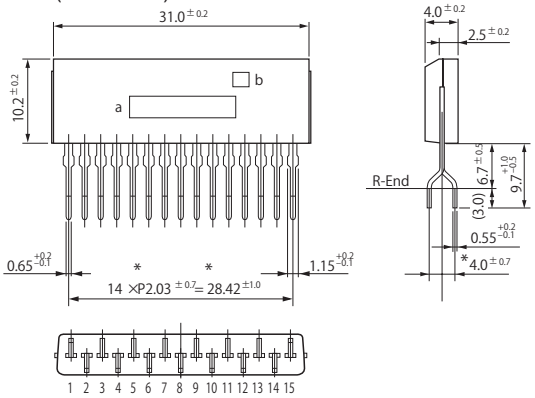
• SIP 10 (STA10Pin)



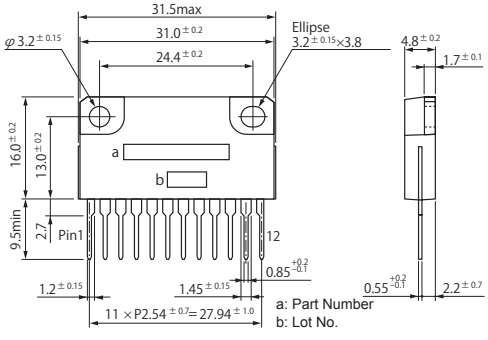
• SIP 12 (SMA12Pin)



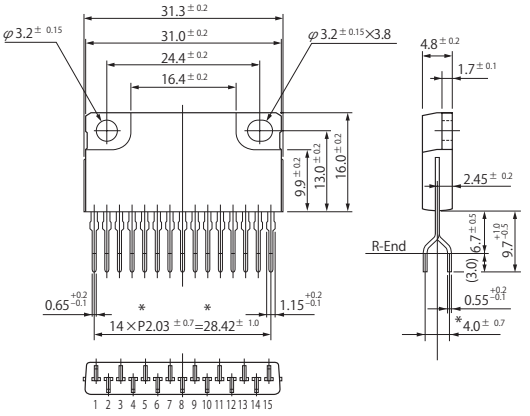
• SIP 15 (SMA15Pin)



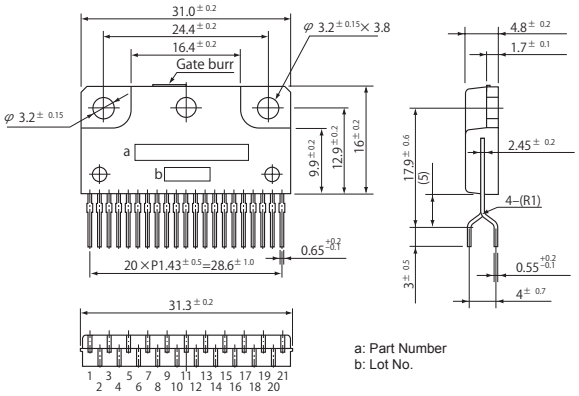
• SIP 12 with Fin (SLA12Pin)



• SIP 15 with Fin (SLA15Pin)



• SIP 21 with Fin (SLA21Pin)



(Unit:mm)