

SMA5130

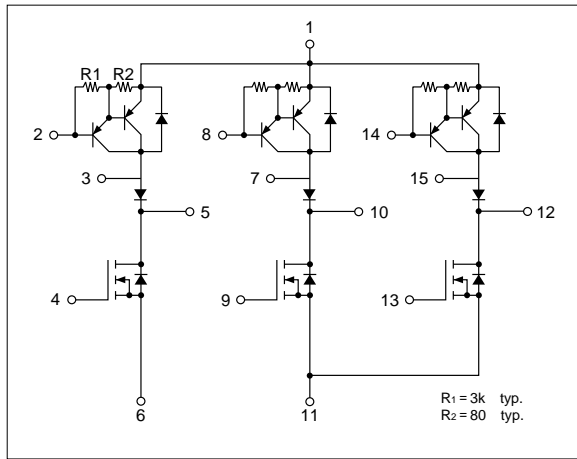
PNP ダーリントン + NチャネルMOSFET
3相モータドライブ用

絶対最大定格

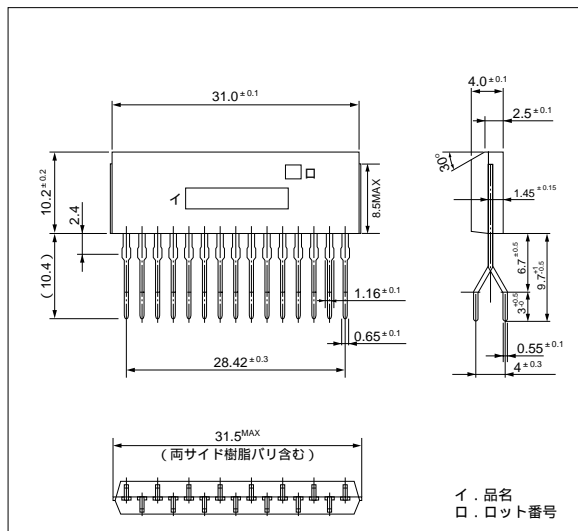
(Ta = 25)

記号	定格	単位
V _{DSS}	250	V
V _{GSS}	± 20	V
I _D (DC)	2.5	A
I _{α pulse}	5 (Pw 100 μs, duty 1%)	A
V _{CBO}	- 250	V
V _{CEO}	- 250	V
V _{EBO}	- 6	V
I _{α DC}	- 2.5	A
I _{α pulse}	- 5 (Pw 100 μs, duty 1%)	A
P _T	4 (Ta = 25 , 全回路動作, No Fin)	W
	28 (Tc = 25 , 全回路動作, Fin)	W
j-a	31.25 (接合 - 外気間, Ta = 25 , 全回路動作)	/W
j-c	4.46 (接合 - ケース間, Tc = 25 , 全回路動作)	/W
T _{ch} /T _j	150	
T _{stg}	- 40 ~ + 150	

等価回路図



外形図



電気的特性

Nch MOSFET

(Ta = 25)

記号	規格値			単位	条件
	min	typ	max		
V _{(BR)DSS}	250			V	I _D = 100 μA, V _{GS} = 0V
I _{GSS}			± 100	nA	V _{GS} = ± 20V
I _{DSS}			100	μA	V _{DS} = 250V, V _{GS} = 0V
V _{TH}	2.0		4.0	V	V _{DS} = 10V, I _D = 1mA
R _{θ(jc)}	1.2			S	V _{DS} = 10V, I _D = 1.5A
R _{Dθ(ON)}		650	900	m	V _{GS} = 10V, I _D = 1.5A
C _{iss}		250		pF	V _{DS} = 10V
C _{oss}		150		pF	f = 1.0MHz
C _{rss}		65		pF	V _{GS} = 0V
t _{D(on)}		15		ns	I _D = 1.5A
t _r		25		ns	V _{DD} = 100V
t _{D(off)}		50		ns	R _G = 50
t _f		30		ns	V _{GS} = 10V
V _{SD}		0.95	1.5	V	I _{SD} = 2.5A, V _{GS} = 0V
t _{rr}		60		ns	I _{SD} = 2.5A, V _{GS} = 0V, di/dt = 100A/μs

ダイオード

(Ta = 25)

記号	規格値			単位	条件
	min	typ	max		
V _R	100			V	I _R = 10 μA
V _F		1.2	1.5	V	I _F = 2.5A
I _R			100	μA	V _R = 100V
t _{rr}		50		ns	I _F = 2.5A, di/dt = 100A/μs

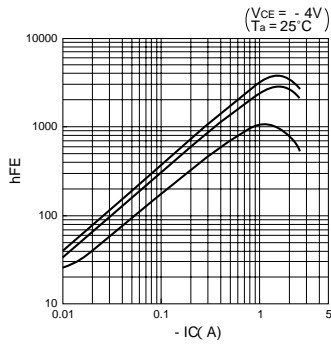
PNPトランジスタ

(Ta = 25)

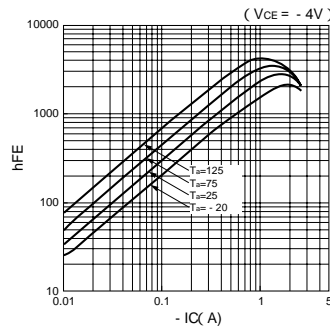
記号	規格値			単位	条件
	min	typ	max		
I _{CBO}			- 100	μA	V _{CB} = - 250V
I _{EBO}			- 10	mA	V _{EB} = - 6V
V _{CEO}	- 250			V	I _C = - 1mA
h _{FE}	1000				V _{CE} = - 4V, I _C = - 1A
V _{CE(sat)}			- 1.5	V	I _C = - 1A, I _B = - 5mA
V _{BE(sat)}			- 2.2	V	
t _{on}		0.5		μs	V _{CC} = - 100V
t _{stg}		4		μs	I _C = - 1A
t _r		0.5		μs	I _B = ± 10mA
C _{ob}		70		pF	V _{CB} = - 10V, f = 1MHz

特性曲線 (PNP)

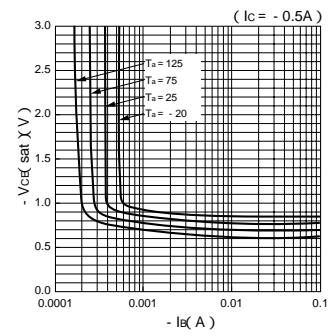
hFE-Ic特性 (代表例)



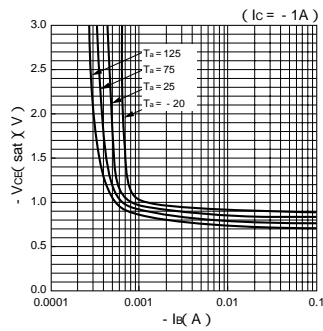
hFE-Ic特性 (代表例)



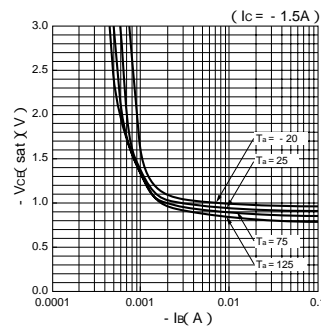
VCE(sat)-Ib特性 (代表例)



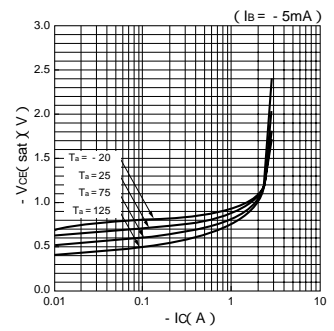
VCE(sat)-Ib特性 (代表例)



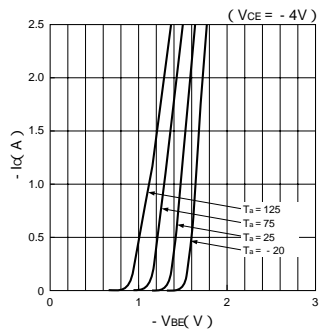
VCE(sat)-Ib特性 (代表例)



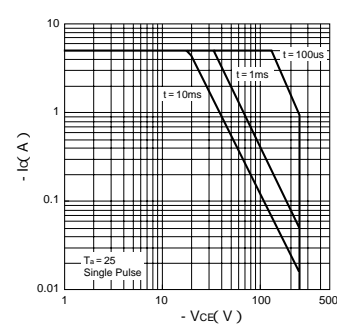
VCE(sat)-Ic特性 (代表例)



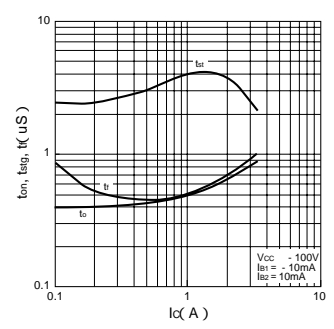
Ic-VBE特性 (代表例)



ASO曲線

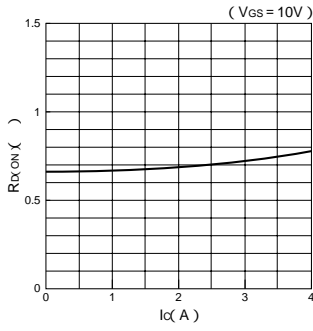


Switching Time-Ic特性 (代表例)

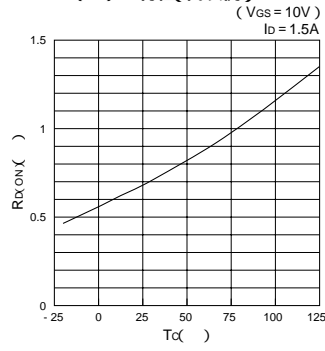


特性曲線 (Nチャンネル)

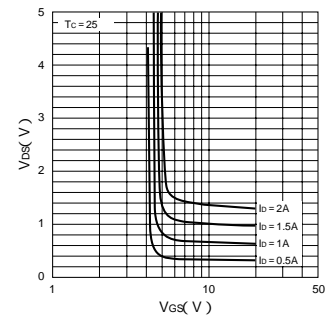
R_{DS(ON)}-I_D特性 (代表例)



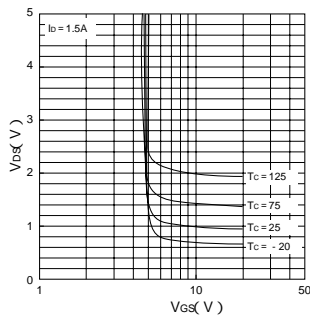
R_{DS(ON)}-T_C特性 (代表例)



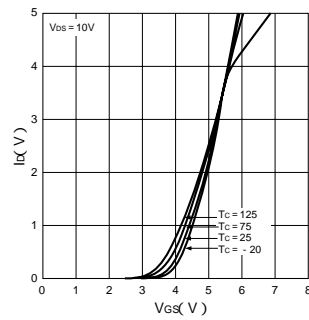
V_{DS}-V_{GS}特性 (代表例)



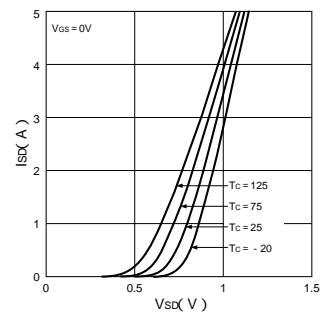
V_{DS}-V_{GS}特性 (代表例)



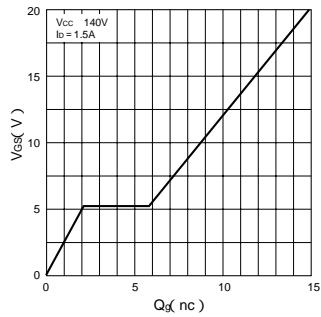
I_D-V_{GS}特性 (代表例)



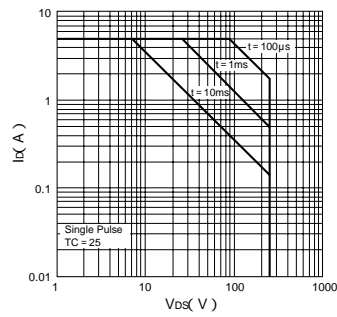
I_{SD}-V_{SD}特性 (代表例)



Typical Gate Charge特性 (代表例)



ASO曲線



I_F-V_F CURVE 逆流防止Di特性 (代表例)

