

FEATURES

Low $V_{CE(sat)}$, high current.

APPLICATIONS

Supply line switching circuits
Battery management applications
DC/DC converter applications
Strobe flash units
Heavy duty battery powered equipment (motor and lamp drivers).

SOT-23



MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

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

Parameter	Symbol	Rating	Unit
Collector to Base Voltage	V_{CBO}	-40	V
Collector to Emitter Voltage	V_{CEO}	-40	V
Emitter to Base Voltage	V_{EBO}	-5	V
Collector Current	I_C	-2	A
Peak Collector Current	I_{CM}	-3	A
Base Current	I_B	-0.3	A
Total Power Dissipation	$P_{tot(注 1)}$	300	mW
Total Power Dissipation	$P_{tot(注 2)}$	0.48	W
Junction Temperature	T_j	150	°C
Storage Temperature Range	T_{stg}	-65~150	°C

Notes

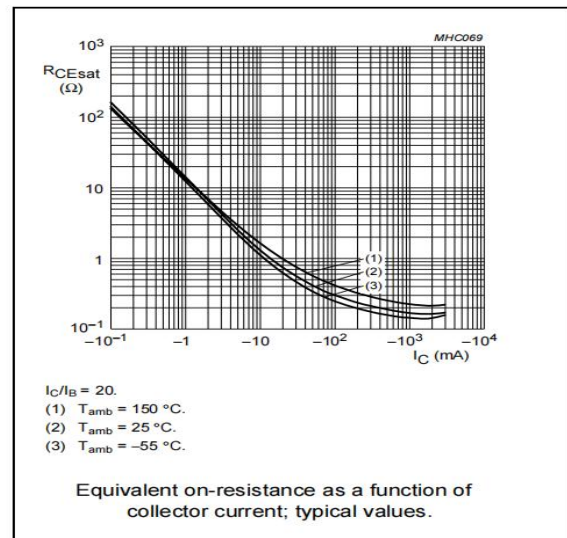
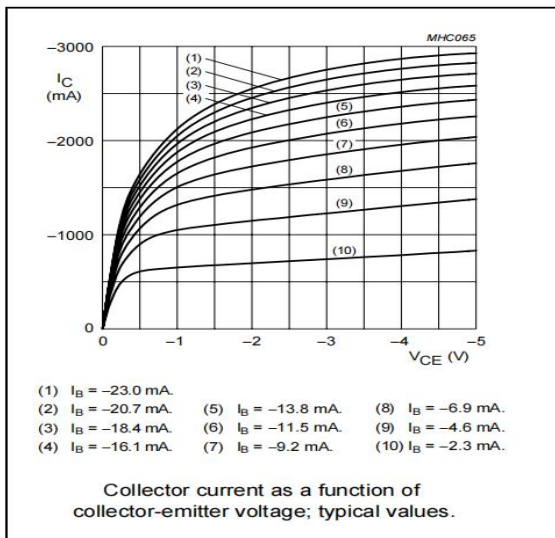
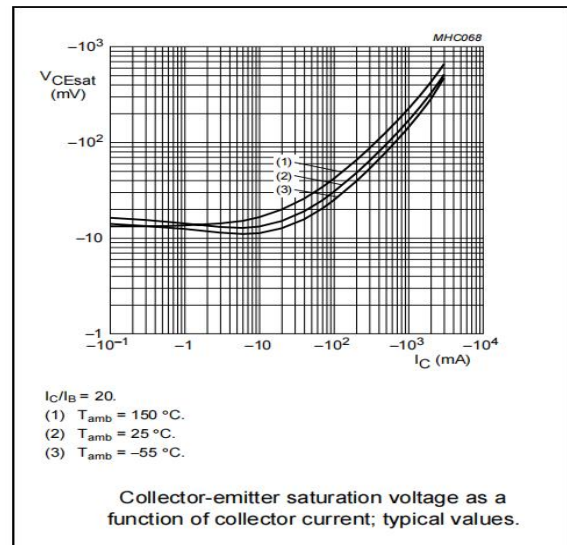
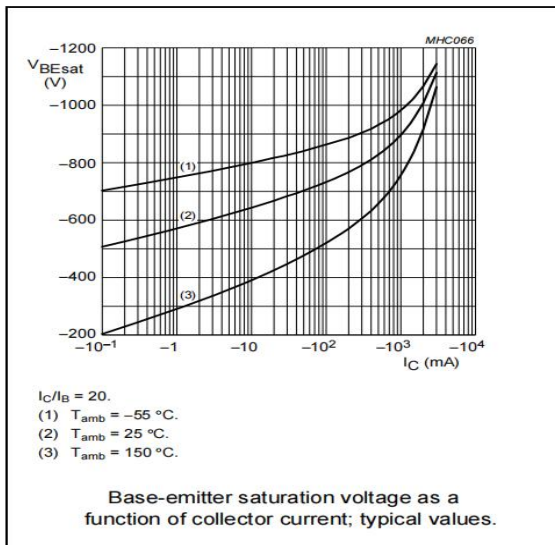
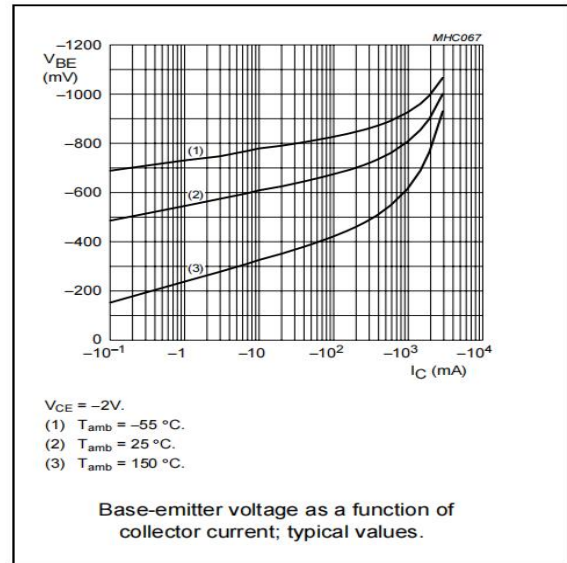
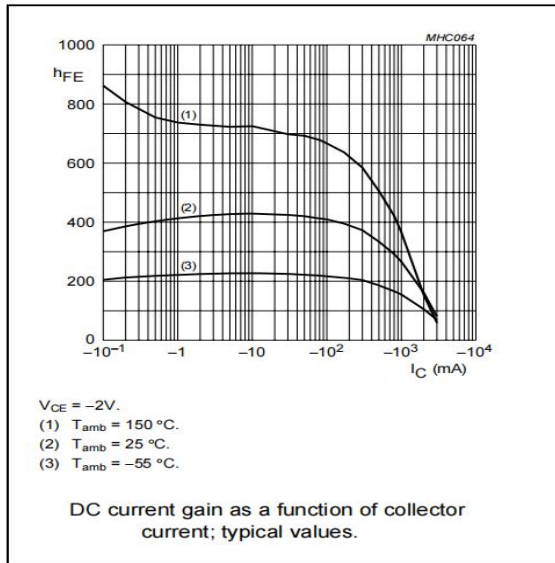
1.Device mounted on a printed-circuit board, single sided copper, tin plated, standard footprint.

2.Device mounted on a printed-circuit board, single sided copper, tin plated, mounting pad for collector 1cm².

ELECTRICAL CHARACTERISTICS (TA = 25°C unless otherwise noted.)

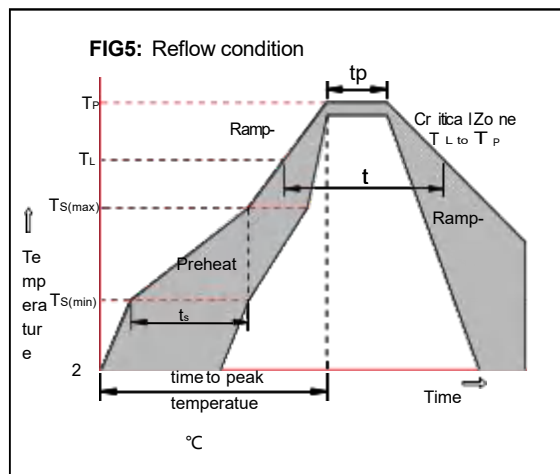
Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Collector Cut-Off Current	I_{CBO}	$V_{CB}=-30V$ $I_E=0$			-100	nA
		$V_{CB}=-30V$ $I_E=0$ $T_J=150^{\circ}C$			-50	uA
emitter Cut-Off Current	I_{EBO}	$V_{EB}=-4.0V$ $I_C=0$			-100	nA
DC Current Gain	$h_{FE(1)}$	$V_{CE}=-2.0V$ $I_C=-100mA$	300			
	$h_{FE(2)}$	$V_{CE}=-2.0V$ $I_C=-500mA$	260			
	$h_{FE(3)*}$	$V_{CE}=-2.0V$ $I_C=-1.0A$	210			
	$h_{FE(4)*}$	$V_{CE}=-2.0V$ $I_C=-2.0A$	100			
Collector-Emitter Saturation Voltage	$V_{CE(sat)(1)*}$	$I_C=-100mA$ $I_B=-1mA$			-100	mV
	$V_{CE(sat)(2)*}$	$I_C=-500mA$ $I_B=-50mA$			-110	mV
	$V_{CE(sat)(3)*}$	$I_C=-750mA$ $I_B=-15mA$			-225	mV
	$V_{CE(sat)(4)*}$	$I_C=-1A$ $I_B=-50mA$			-225	mV
	$V_{CE(sat)(5)*}$	$I_C=-2A$ $I_B=-200mA$			-350	mV
Equivalent On-Resistance	$R_{CE(sat)*}$	$I_C=-0.5A$ $I_B=-50mA$		160	220	mQ
Base-Emitter Saturation Voltage	$V_{BE(sat)*}$	$I_C=-2.0A$ $I_B=-200mA$			-1.1	V
Base-Emitter Voltage	$V_{BE(ON)*}$	$V_{CE}=-2.0V$ $I_C=-0.1A$			-0.75	V
Transition Frequency	f_T	$V_{CE}=-10V$ $f=100MHz$ $I_C=-100mA$	100			MHz
Collector Capacitance	C_C	$V_{CB}=-10V$ $f=1.0MHz$ $I_E=0$			28	pF

RATING AND CHARACTERISTIC CURVES



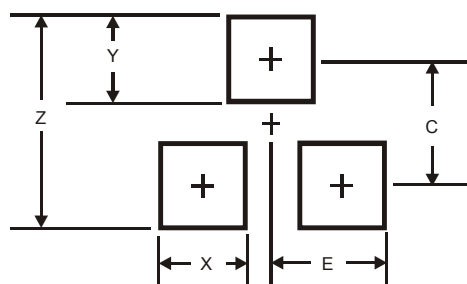
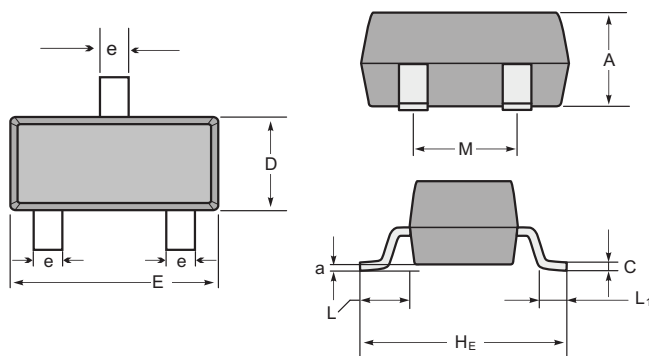
Soldering parameters

Reflow Condition		Pb-Free assembly (see as below)
Pre Heat	-Temperature Min ($T_{s(min)}$)	+150°C
	-Temperature Max($T_{s(max)}$)	+200°C
	-Time (Min to Max) (ts)	60-180 secs.
Average ramp up rate (Liquid us Temp (T_L) to peak)		3°C/sec. Max
$T_{s(max)}$ to T_L - Ramp-up Rate		3°C/sec. Max
Reflow	-Temperature(T_L)(Liquid us)	+217°C
	-Temperature(t_L)	60-150 secs.
Peak Temp (T_P)		+260(+0/-5)°C
Time within 5°C of actual Peak Temp (t_P)		30 secs. Max
Ramp-down Rate		6°C/sec. Max
Time 25°C to Peak Temp (T_P)		8 min. Max
Do not exceed		+260°C



Package Dimensions & Suggested Pad Layout

SOT23



SOT-23 mechanical data

UNIT	A	C	D	E	H _E	e	M	L	L ₁	a
mm	max	1.1	0.15	1.4	3.0	2.6	0.5	1.95	0.55 (ref)	0.0
	min	0.9	0.08	1.2	2.8	2.2	0.3	1.7	0.36 (ref)	0.15
mil	max	43	6	55	118	102	20	77	22 (ref)	0.0
	min	35	3	47	110	87	12	67	14 (ref)	6

Dimensions	SOT23
Z	2.9
X	0.8
Y	0.9
C	2.0
E	1.35

Tape & reel specification

Tape	Symbol	Dimension (mm)
	P0	4.00±0.10
	P1	4.00±0.10
	P2	2.00±0.10
	D0	1.55±0.10
	D1	1.05±0.10
	E	1.55±0.10
	F	3.60±0.10
	W	8.00±0.10
	A0	3.80±0.20
	B0	3.25±0.20
	K0	1.45±0.10
	T	0.25±0.05
	D2	178.0±3.0
	D3	55Min.
7" Reel	D4	R24.0±3.0
	G	R82.0±3.0
	I	13.0±2.0
	W1	11.0±3.0
	Quantity: 3000PCS	

