

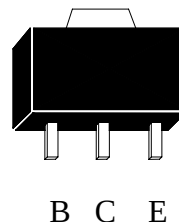
Low Vcesat NPN Epitaxial Planar Transistor

Features:

- Low $V_{CE(sat)}$, 0.3V typ. at $I_C / I_B = 2A / 0.2A$
- Excellent current gain characteristics
- Complementary to KWB1188M3
- Pb-free lead plating and halogen-free package

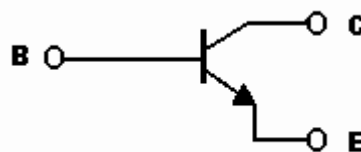
Outline

SOT-89



Symbol

KWD1766M3



B : Base

C : Collector

E : Emitter

BV_{CEO}	32V
I_C	2A
$R_{CESAT(yp)}$	150m Ω

Absolute Maximum Ratings (Ta=25°C)

Parameter	Symbol	Limit	Unit
Collector-Base Voltage	V_{CBO}	60	V
Collector-Emitter Voltage	V_{CEO}	32	V
Emitter-Base Voltage	V_{EBO}	6	V
Collector Current (DC)	I_C	2	A
Collector Current (Pulse)	I_{CP}	4	A
Power Dissipation	P_D	0.6	W
		1 (Note 1)	
		2 (Note 2)	
Operating Junction and Storage Temperature Range	$T_j ; T_{stg}$	-55~+150	°C

Note : 1. When mounted on FR-4 PCB with area measuring 10×10×1 mm

2. When mounted on ceramic with area measuring 40×40×1 mm

Thermal Characteristics

Parameter	Symbol	Value	Unit
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	208	°C/W
		125 (Note 1)	
		62.5 (Note 2)	

Note : 1. When mounted on FR-4 PCB with area measuring 10×10×1 mm

2 . When mounted on ceramic with area measuring 40×40×1 mm

Characteristics (Ta=25°C)

Symbol	Min.	Typ.	Max.	Unit	Test Conditions
BV_{CBO}	60	-	-	V	$I_C=50\mu A, I_E=0$
BV_{CEO}	32	-	-	V	$I_C=1mA, I_B=0$
BV_{EBO}	6	-	-	V	$I_E=50\mu A, I_C=0$
I_{CBO}	-	-	100	nA	$V_{CB}=60V, I_E=0$
I_{EBO}	-	-	100	nA	$V_{EB}=6V, I_C=0$
$*V_{CE(sat)}$	-	0.3	0.5	V	$I_C=2A, I_B=0.2A$
$*R_{CE(sat)}$	-	0.15	0.25	Ω	$I_C=2A, I_B=0.2A$
$*V_{BE(sat)}$	-	-	1.5	V	$I_C=2A, I_B=0.2A$
$*h_{FE1}$	160	-	-	-	$V_{CE}=3V, I_C=20mA$
$*h_{FE2}$	180	-	390	-	$V_{CE}=3V, I_C=500mA$
$*h_{FE3}$	150	-	-	-	$V_{CE}=3V, I_C=1A$
f_T	-	270	-	MHz	$V_{CE}=5V, I_C=0.5A, f=100MHz$
Cob	-	16	-	pF	$V_{CB}=10V, f=1MHz$

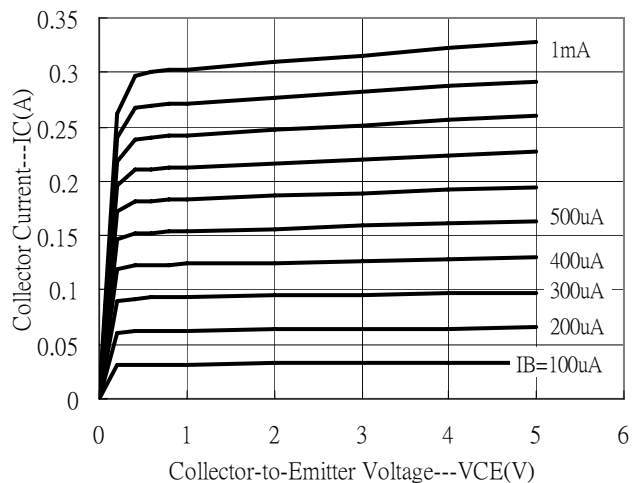
*Pulse Test : Pulse Width ≤300μs, Duty Cycle≤2%

Ordering Information

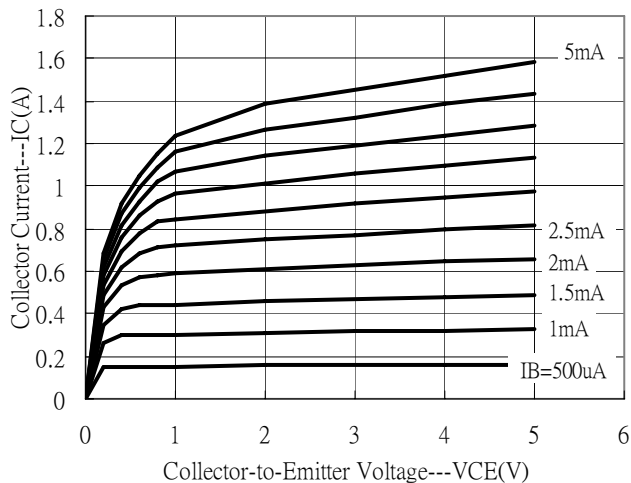
Device	Package	Shipping
KWD1766M3	SOT-89 (Pb-free lead plating and halogen-free package)	1000 pcs / Tape & Reel

Typical Characteristics

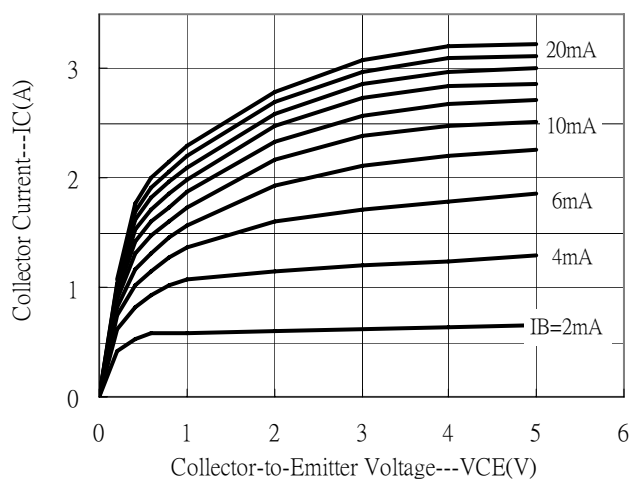
Emitter Grounded Output Characteristics



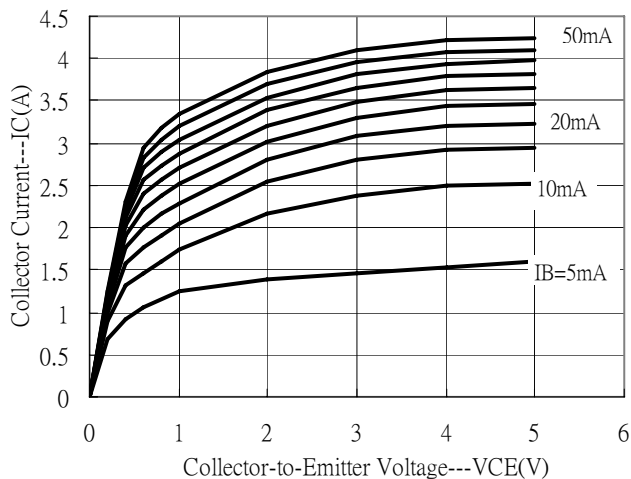
Emitter Grounded Output Characteristics



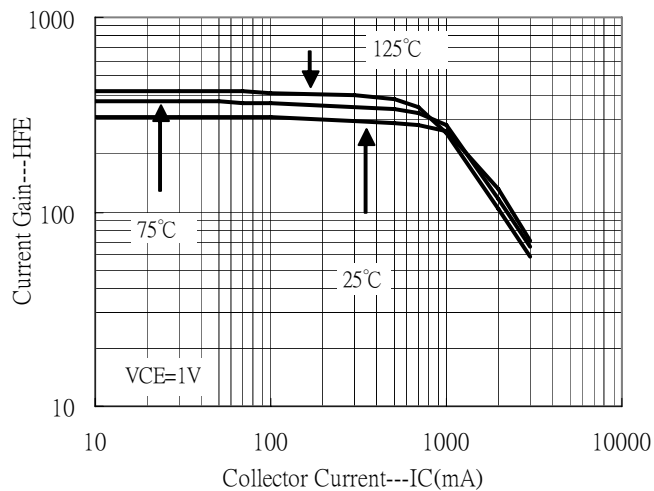
Emitter Grounded Output Characteristics



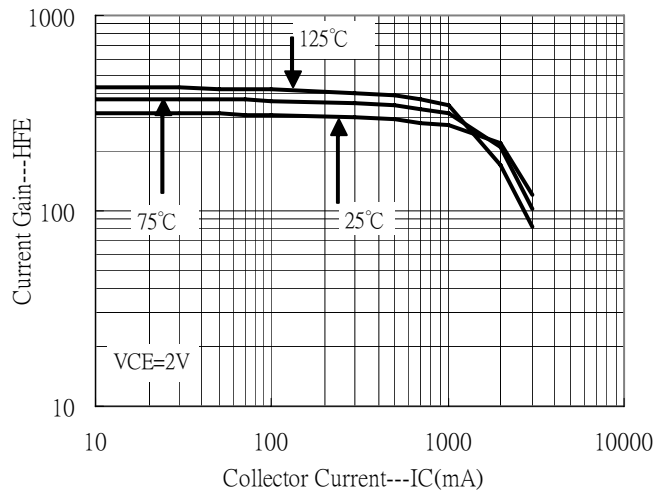
Emitter Grounded Output Characteristics



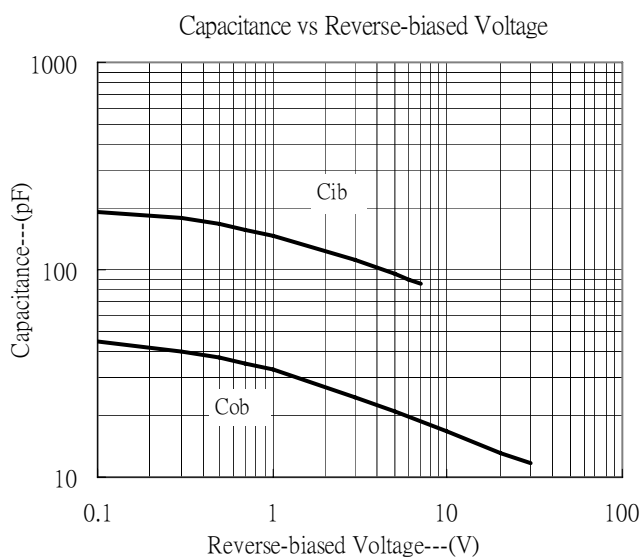
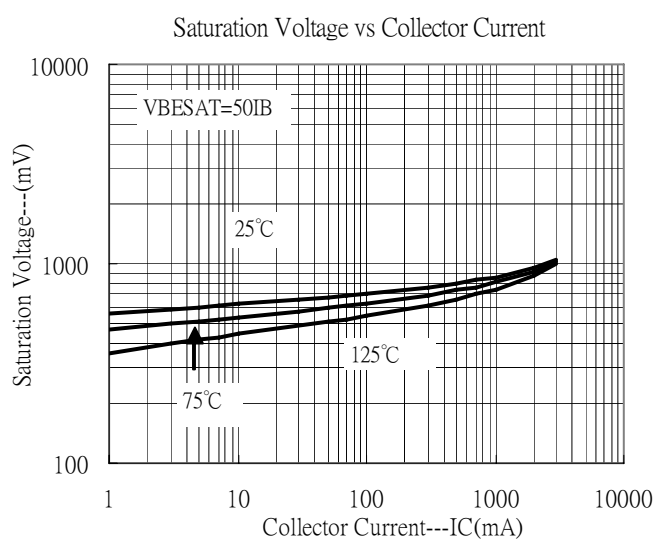
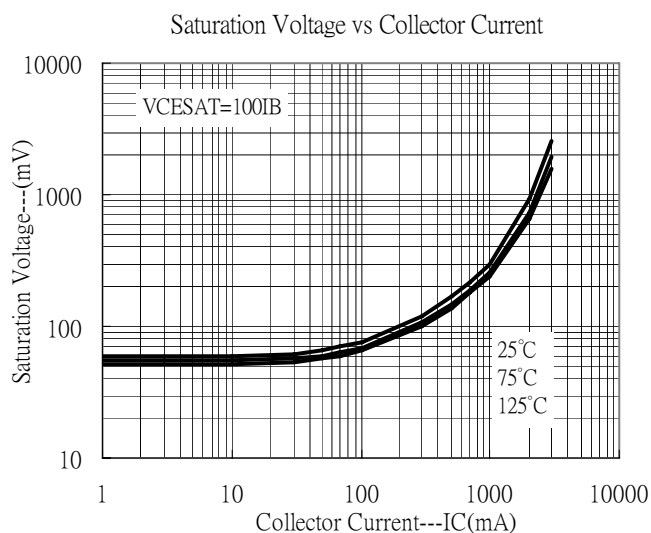
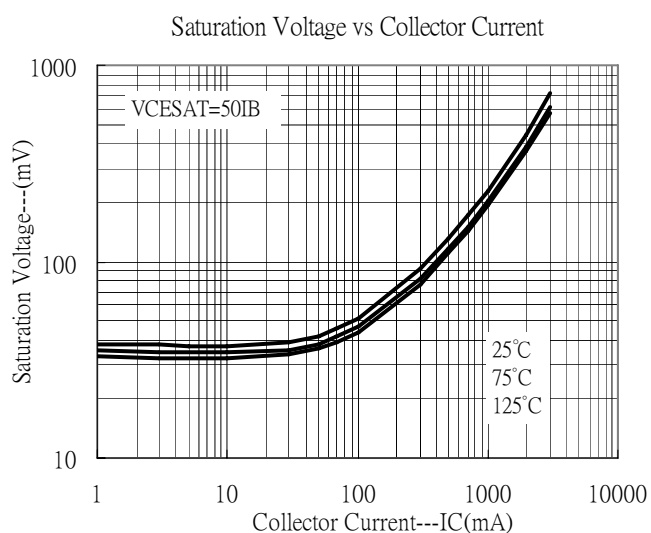
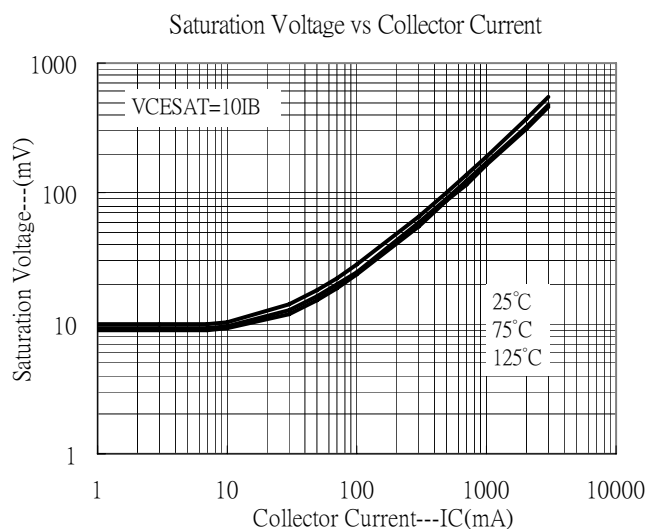
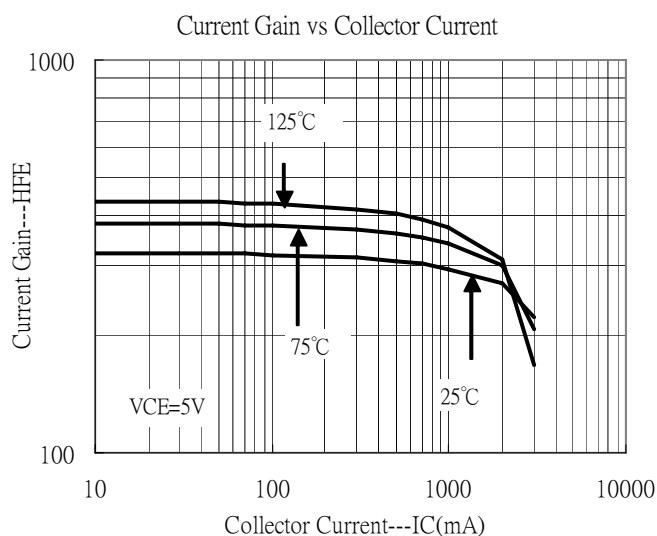
Current Gain vs Collector Current



Current Gain vs Collector Current

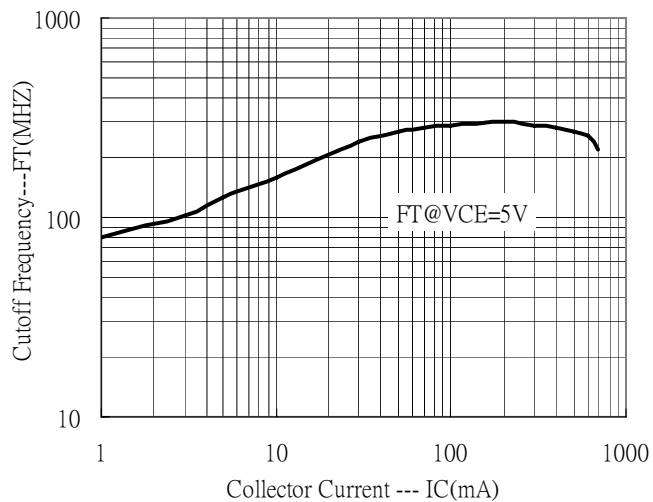


Typical Characteristics(Cont.)

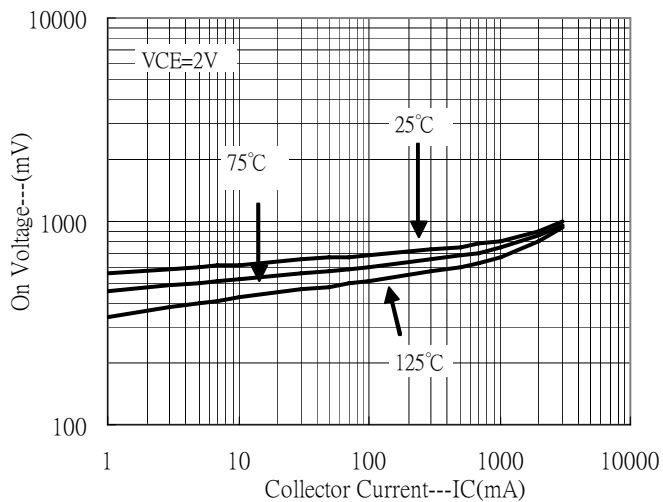


Typical Characteristics(Cont.)

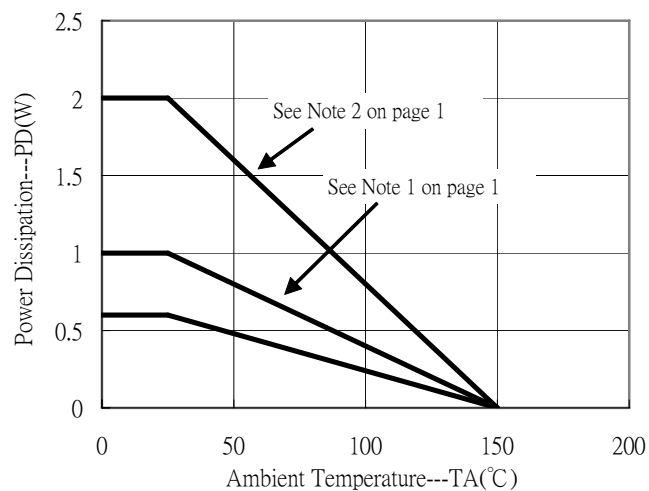
Cutoff Frequency vs Collector Current



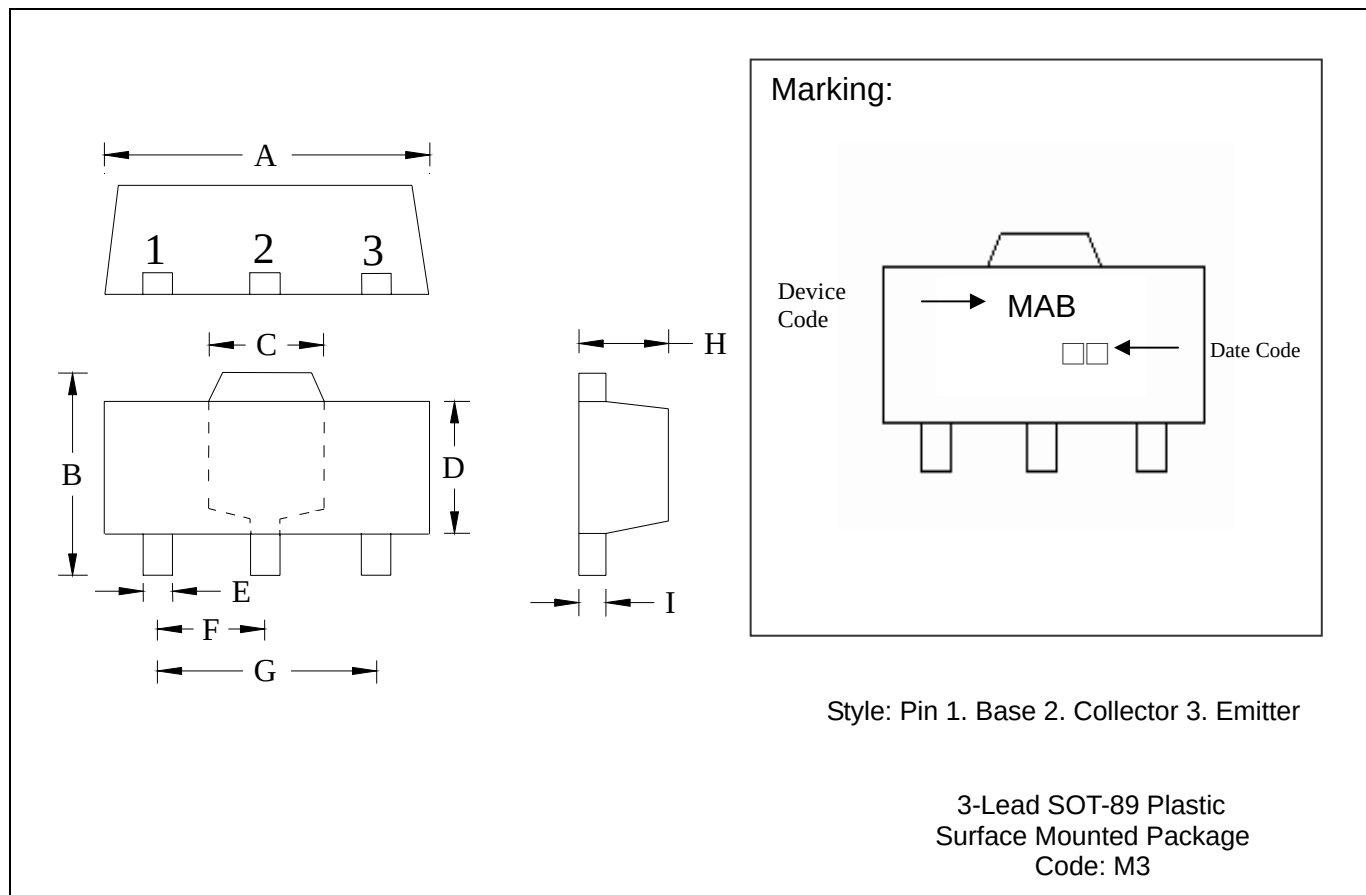
On Voltage vs Collector Current



Power Derating Curves



SOT-89 Dimension



DIM	Inches		Millimeters		DIM	Inches		Millimeters	
	Min.	Max.	Min.	Max.		Min.	Max.	Min.	Max.
A	0.1732	0.1811	4.40	4.60	F	0.0591	TYP	1.50	TYP
B	0.1551	0.1673	3.94	4.25	G	0.1181	TYP	3.00	TYP
C	0.0610	REF	1.55	REF	H	0.0551	0.0630	1.40	1.60
D	0.0906	0.1024	2.30	2.60	I	0.0138	0.0173	0.35	0.44
E	0.0126	0.0205	0.32	0.52					