

NPN Epitaxial Planar Transistor

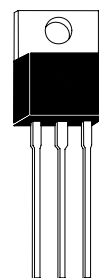
TO-220

Features:

- High BV_{CEO}
- Low $V_{CE(SAT)}$
- High current capability
- Built-in clamping zener
- Pb-free lead plating package

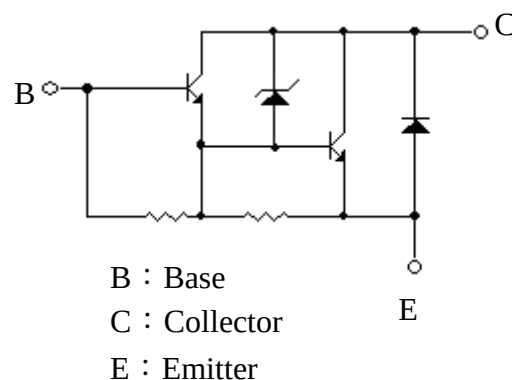
Applications:

- High ruggedness electronic ignitions



B C E

BV_{CEO}	350V
I_C	15A
$V_{CESAT(MAX)}$	1.6V



Ordering Information

Device	Package	Shipping
KWBU941ZL	TO-220 (Pb-free lead plating)	50 pcs / tube, 20 tubes/ box , 4 boxes/carton

Absolute Maximum Ratings (Ta=25°C)

Parameter	Symbol	Limits	Unit
Collector-Base Voltage	V _{CBO}	350	V
Collector-Emitter Voltage	V _{CEO}	350	V
Emitter-Base Voltage	V _{EBO}	5	V
Collector Current	I _{C(DC)}	15	A
	I _{C(Pulse)}	30 *1	
Base Current	I _{B(DC)}	1	A
	I _{B(Pulse)}	5 *1	
Power Dissipation	Pd(T _A =25°C)	2	W
	Pd(T _C =25°C)	150	
Thermal Resistance, Junction to Ambient	R _{θJA}	75	°C/W
Thermal Resistance, Junction to Case	R _{θJC}	1	°C/W
Junction Temperature	T _j	175	°C
Storage Temperature	T _{stg}	-65~+175	°C

Note : *1. Single Pulse Pw=10ms

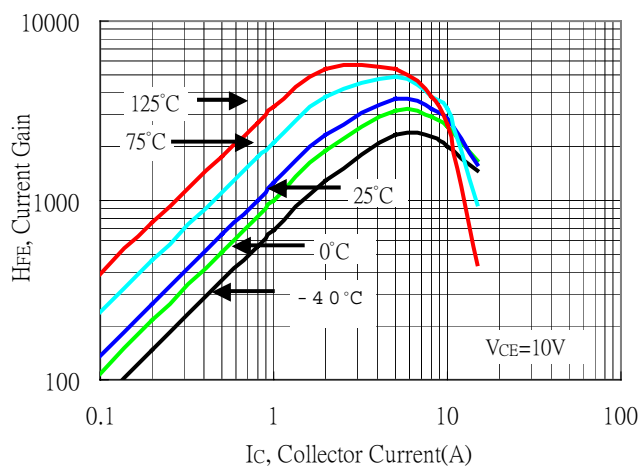
Characteristics (Ta=25°C)

Symbol	Min.	Typ.	Max.	Unit	Test Conditions
BV _{CBO}	350	-	450	V	I _C =1mA, I _E =0
BV _{CEO}	350	-	450		I _C =100mA, I _B =0
I _{CEO}	-	-	10	μA	V _{CE} =300V, I _E =0
I _{CBO}	-	-	10		V _{CB} =300V, I _E =0
I _{EBO}	-	5.34	10	mA	V _{EB} =5V, I _C =0
*V _{CE(sat)} 1	-	1.04	1.6	V	I _C =6A, I _B =10mA
*V _{CE(sat)} 2	-	1.20	1.8		I _C =8.4A, I _B =15mA
*V _{CE(sat)} 3	-	1.12	1.6		I _C =10A, I _B =250mA
*V _{CE(sat)} 4	-	1.39	2.0		I _C =12A, I _B =50mA
*V _{BE(sat)} 1	-	1.77	2.2		I _C =8A, I _B =100mA
*V _{BE(sat)} 2	-	1.86	2.5		I _C =10A, I _B =250mA
*V _{BE(sat)} 3	-	1.94	2.5		I _C =12A, I _B =300mA
*h _{FE} 1	1000	-	4500	-	V _{CE} =10V, I _C =5A
*h _{FE} 2	600	-	-	-	V _{CE} =10V, I _C =10A
*V _{FEC}	-	1.08	1.5	V	I _C =10A

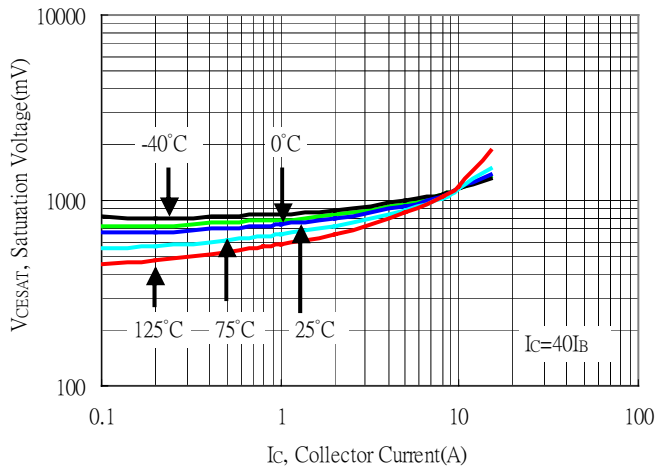
*Pulse Test : Pulse Width ≤300μs, Duty Cycle≤2%

Typical Characteristics

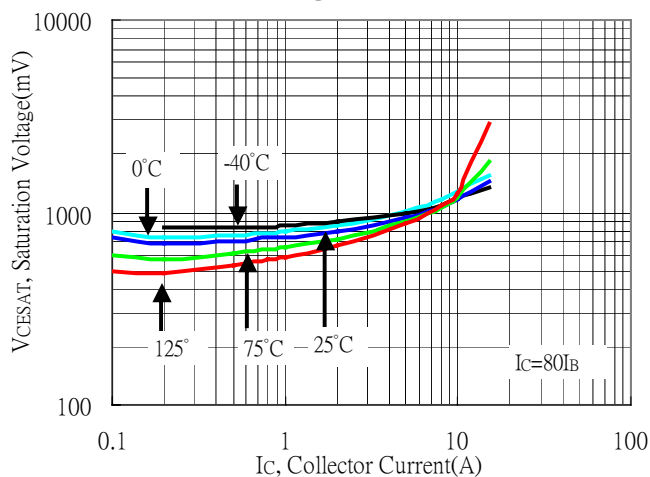
Current Gain vs Collector Current



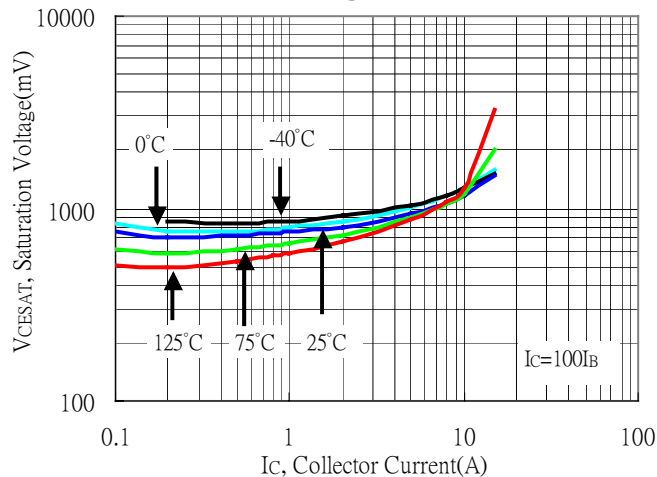
Saturation Voltage vs Collector Current



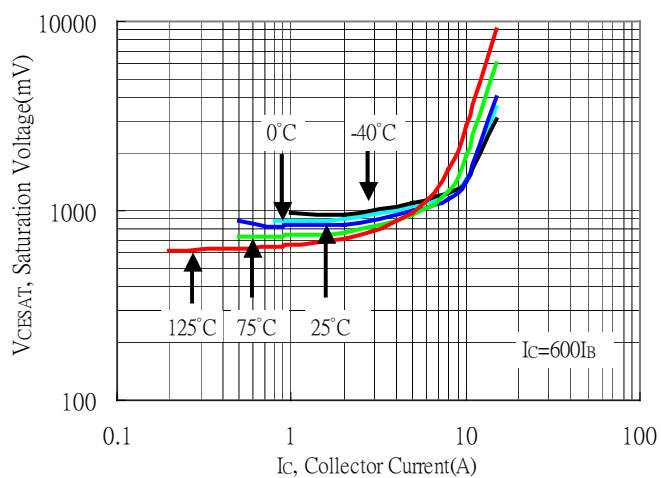
Saturation Voltage vs Collector Current



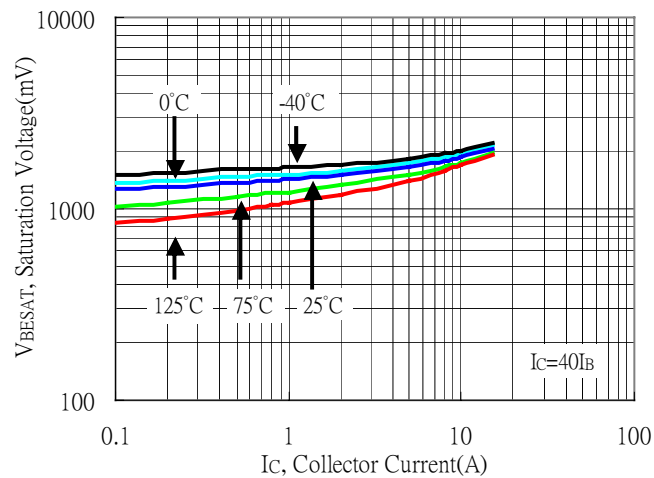
Saturation Voltage vs Collector Current



Saturation Voltage vs Collector Current

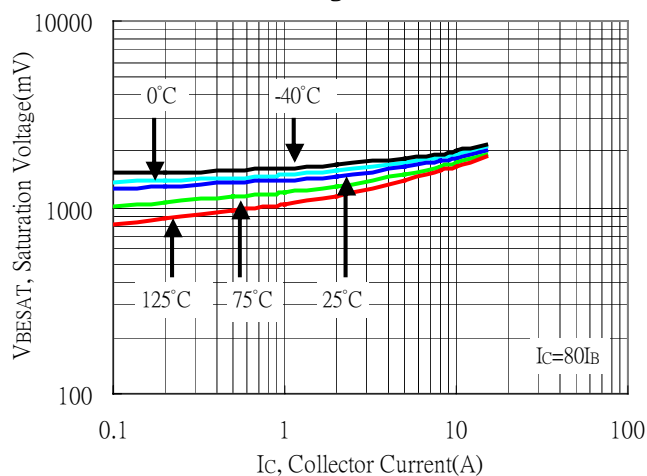


Saturation Voltage vs Collector Current

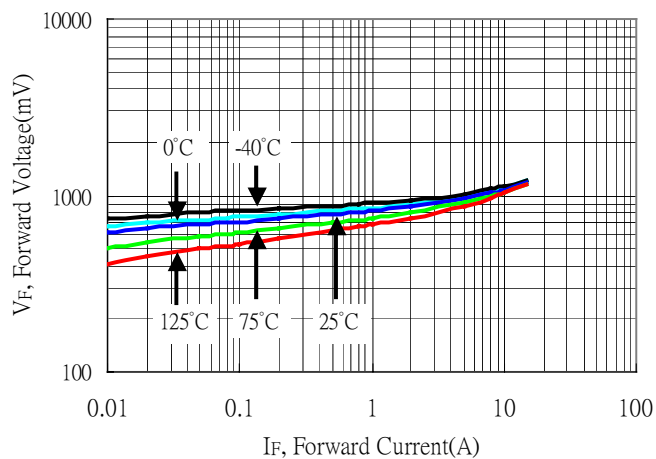


Typical Characteristics(Cont.)

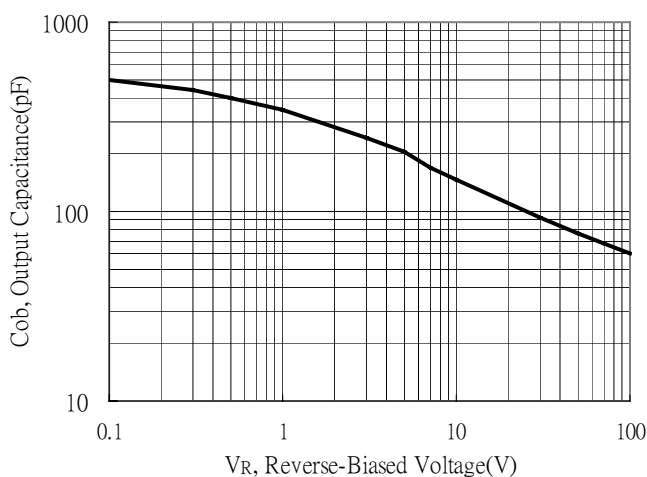
Saturation Voltage vs Collector Current



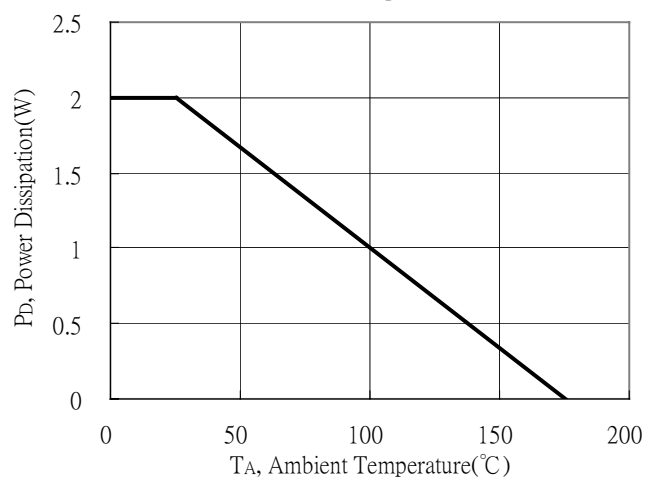
Built-in Diode Forward Characteristics



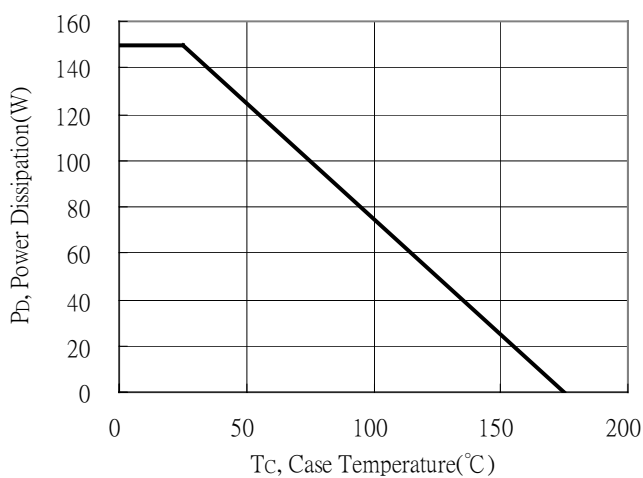
Output Capacitance vs Reverse-Biased Voltage



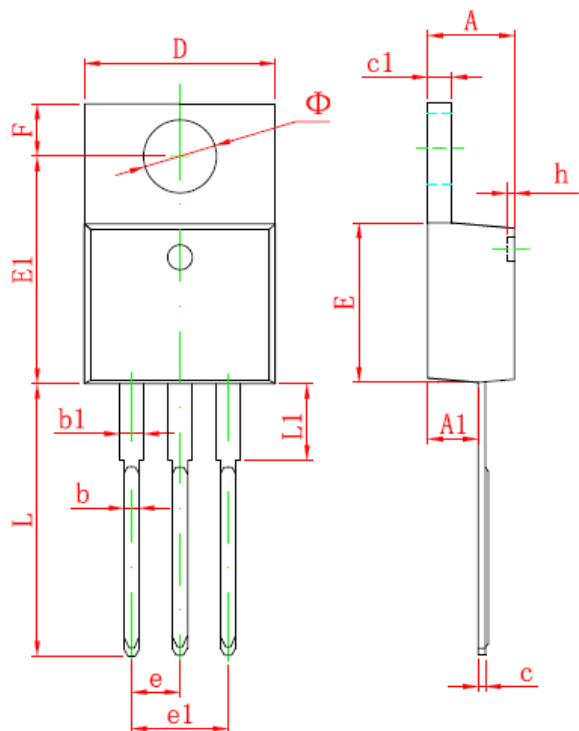
Power Derating Curve



Power Derating Curve

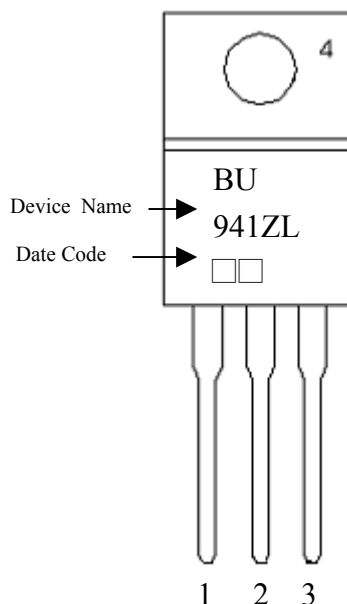


TO-220 Dimension



3-Lead TO-220 Plastic Package

Marking:



Style: Pin 1.Base 2.Collector 3.Emitter
 4.Collector

*: Typical

DIM	Millimeters		Inches		DIM	Millimeters		Inches	
	Min.	Max.	Min.	Max.		Min.	Max.	Min.	Max.
A	4.470	4.670	0.176	0.184	E1	12.060	12.460	0.475	0.491
A1	2.520	2.820	0.099	0.111	e	2.540*		0.100*	
b	0.710	0.910	0.028	0.036	e1	4.980	5.180	0.196	0.204
b1	1.170	1.370	0.046	0.054	F	2.590	2.890	0.102	0.114
c	0.310	0.530	0.012	0.021	h	0.000	0.300	0.000	0.012
c1	1.170	1.370	0.046	0.054	L	13.400	13.800	0.528	0.543
D	10.010	10.310	0.394	0.406	L1	3.560	3.960	0.140	0.156
E	8.500	8.900	0.335	0.350	Φ	3.735	3.935	0.147	0.155