

NPN Epitaxial Planar Transistor

Features:

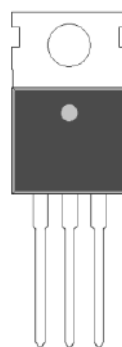
- High BV_{CEO}
- Low $V_{CE(SAT)}$
- High current capability
- Built-in clamping zener
- Pb-free lead plating package

Applications:

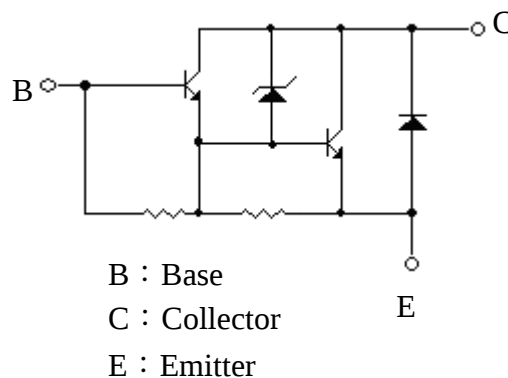
- High ruggedness electronic ignitions

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

TO-220



B C E



Ordering Information

Device	Package	Shipping
KEBU941ZL	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 P_w=10ms

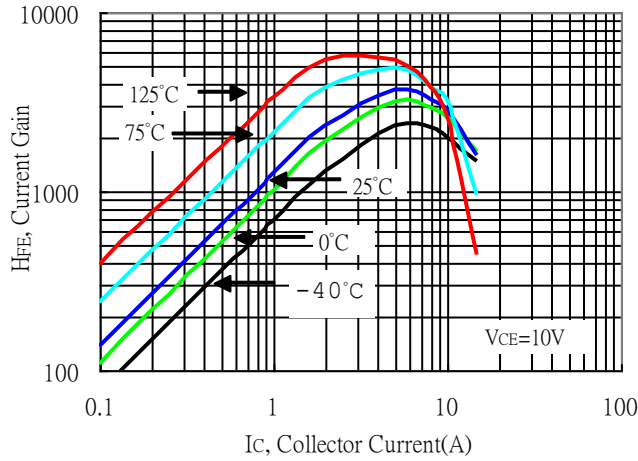
Characteristics (Ta=25°C)

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

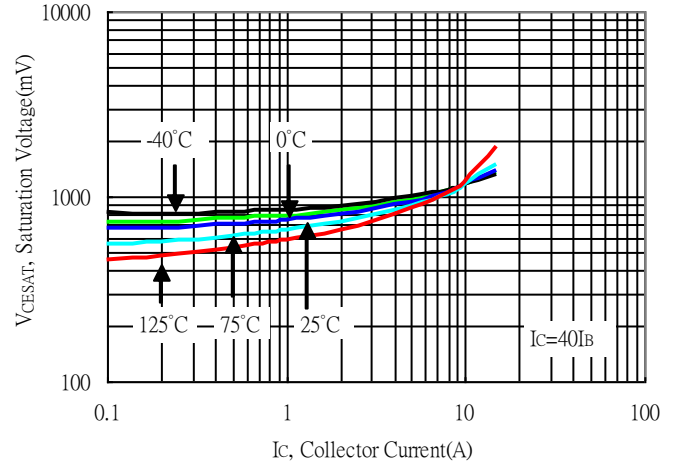
*Pulse Test : Pulse Width ≤300μs, Duty Cycle≤2%

Typical Characteristics

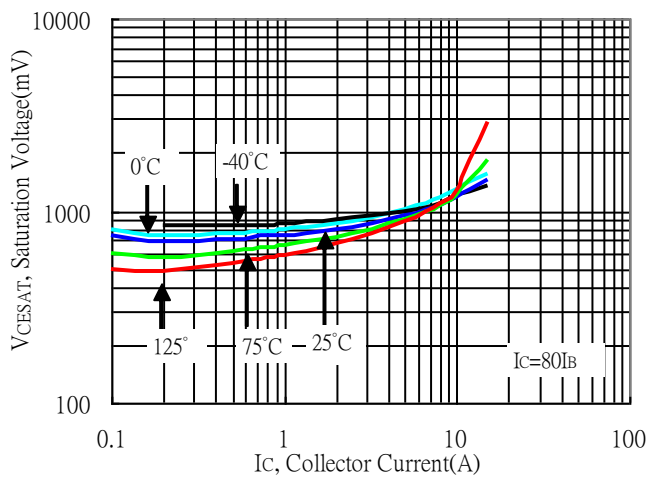
Current Gain vs Collector Current



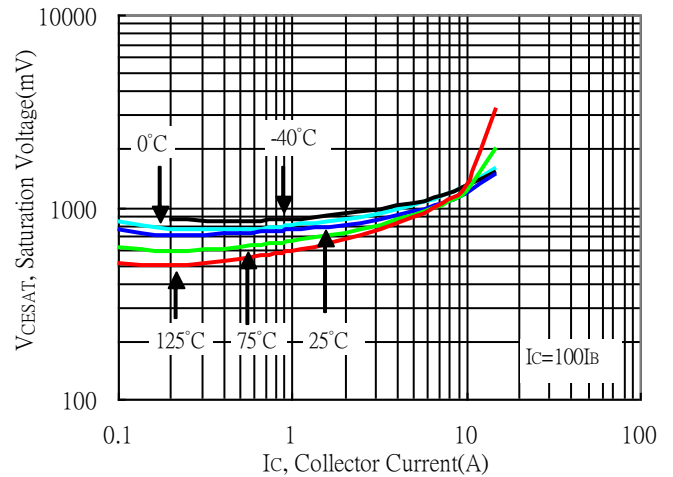
Saturation Voltage vs Collector Current



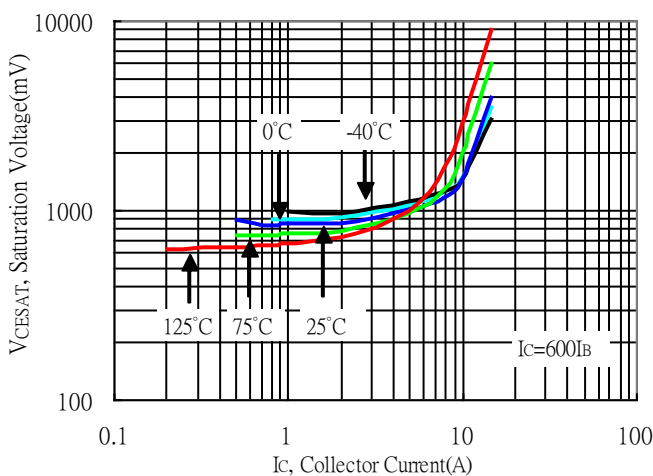
Saturation Voltage vs Collector Current



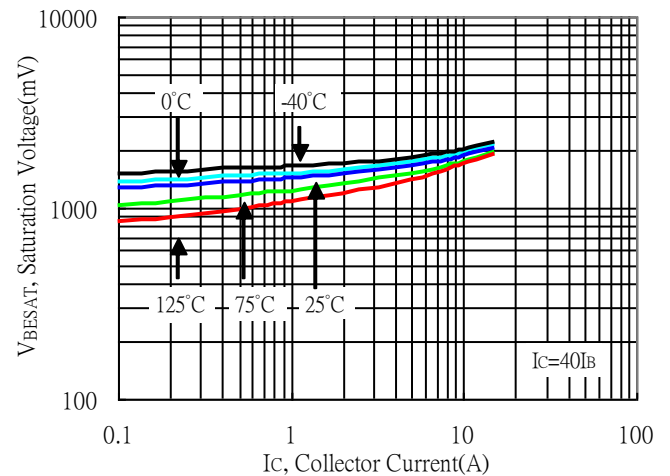
Saturation Voltage vs Collector Current



Saturation Voltage vs Collector Current

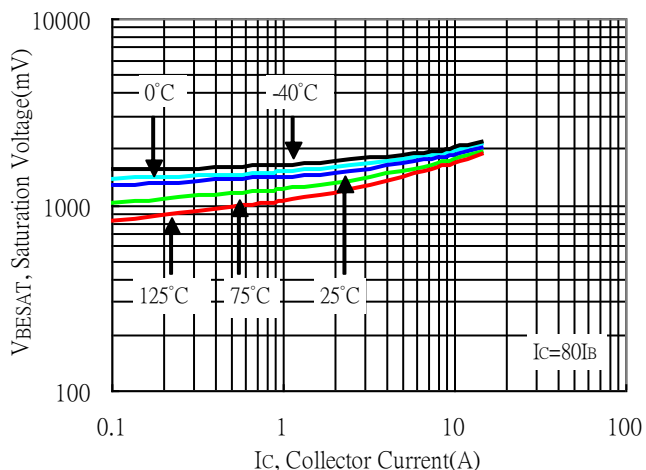


Saturation Voltage vs Collector Current

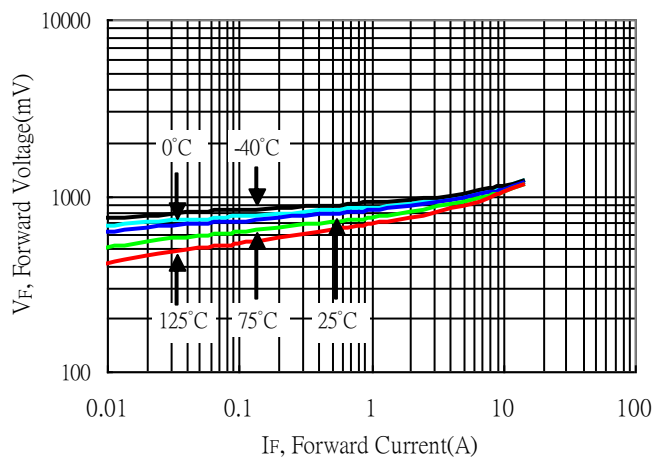


Typical Characteristics(Cont.)

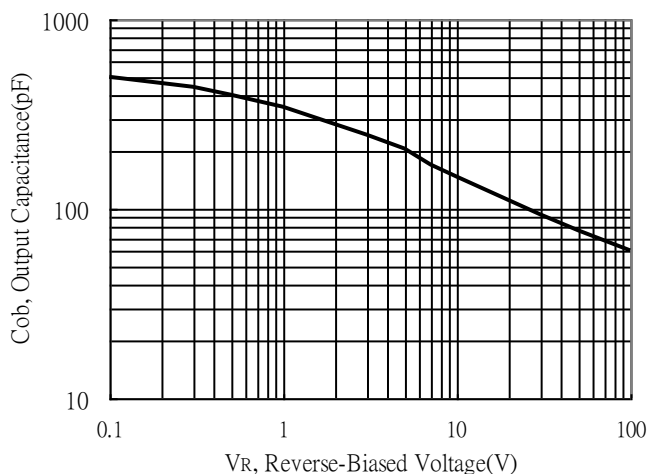
Saturation Voltage vs Collector Current



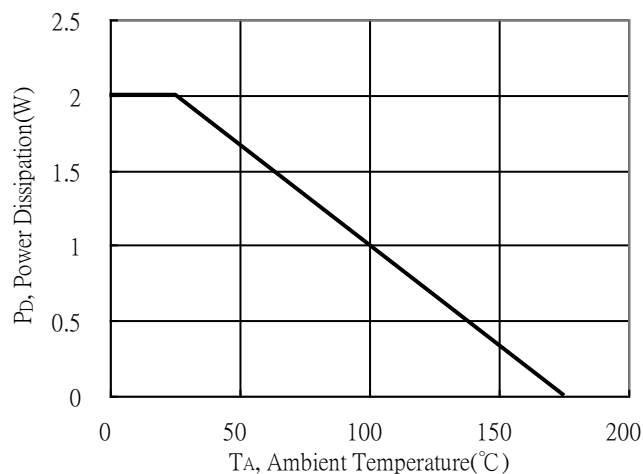
Built-in Diode Forward Characteristics



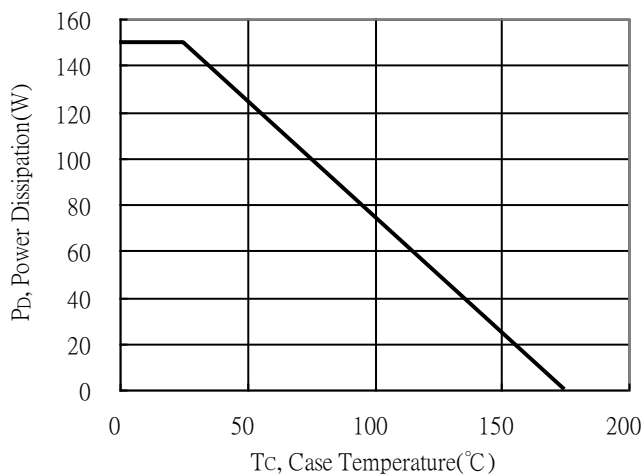
Output Capacitance vs Reverse-Biased Voltage



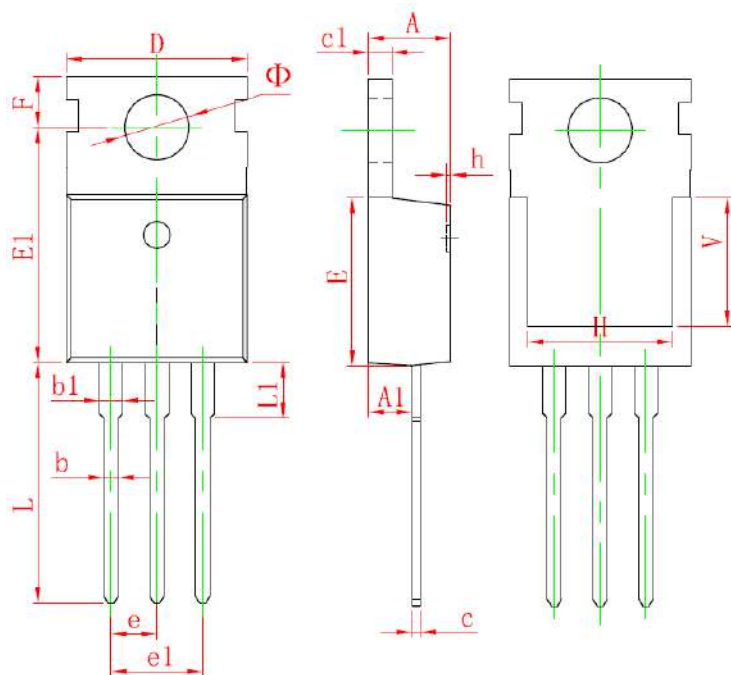
Power Derating Curve



Power Derating Curve

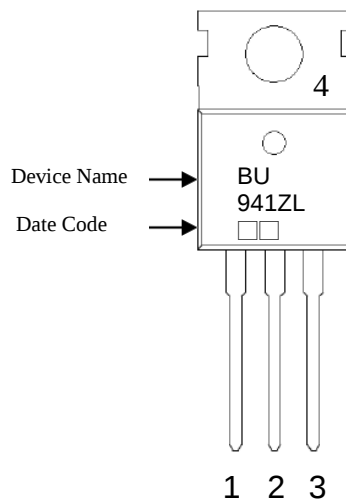


TO-220 Dimension (C forming)



3-Lead TO-220 Plastic Package

Marking:



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

Year Code:

5→2015, 6→2016,..., etc

Month Code:

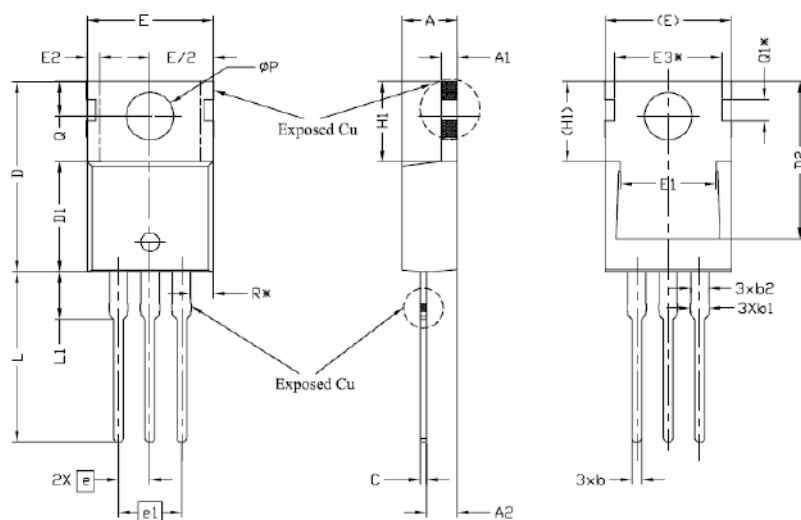
1→Jan, 2→Feb,...,9→Sep, A→Oct, B→

Nov, C→Dec

Typical

DIM	Millimeters		Inches		DIM	Millimeters		Inches	
	Min.	Max.	Min.	Max.		Min.	Max.	Min.	Max.
A	4.400	4.600	0.173	0.181	e	2.540 TYP		0.100 TYP	
A1	2.250	2.550	0.089	0.100	e1	4.980	5.180	0.196	0.204
b	0.710	0.910	0.028	0.036	F	2.650	2.950	0.104	0.116
b1	1.170	1.370	0.046	0.054	H	7.900	8.100	0.311	0.319
c	0.330	0.650	0.013	0.026	h	0.000	0.300	0.000	0.012
c1	1.200	1.400	0.047	0.055	L	12.900	13.400	0.508	0.528
D	9.910	10.250	0.390	0.404	L1	2.850	3.250	0.112	0.128
E	8.950	9.750	0.352	0.384	V	7.500 REF		0.295 REF	
E1	12.650	12.950	0.498	0.510	Φ	3.400	3.800	0.134	0.150

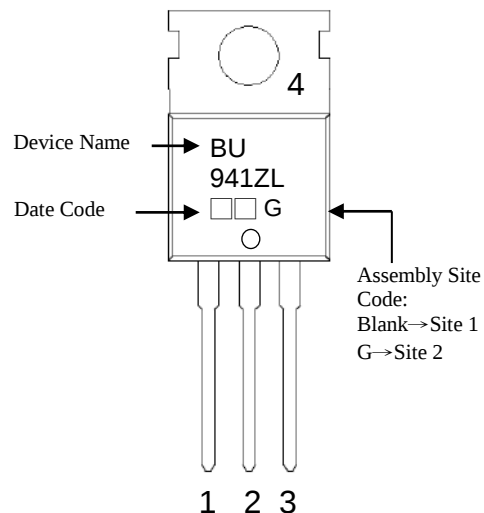
TO-220 Dimension (G forming)



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

3-Lead TO-220 Plastic Package

Marking:



Year Code:
5→2015, 6→2016,..., etc
Month Code:
1→Jan, 2→Feb,...,9→Sep, A→Oct, B→
Nov, C→Dec

Typical

DIM	Millimeters		Inches		DIM	Millimeters		Inches	
	Min.	Max.	Min.	Max.		Min.	Max.	Min.	Max.
A	4.24	4.64	0.1669	0.1826	E2	-	0.76	-	0.0299
A1	1.15	1.40	0.0452	0.0551	E3	8.70 REF		0.3425 REF	
A2	2.30	2.70	0.0905	0.1062	e	2.54 BSC		0.1000 BSC	
b	0.70	0.90	0.0275	0.0354	e1	5.08 BSC		0.2000 BSC	
b1	1.20	1.75	0.0472	0.0688	H1	6.30	6.60	0.2480	0.2598
b2	1.20	1.70	0.0472	0.0688	L	13.47	13.97	0.5303	0.5500
c	0.40	0.60	0.0157	0.0236	L1	3.60	4.00	0.1417	0.1574
D	14.70	16.00	0.5787	0.6299	ØP	3.75	3.93	0.1476	0.1547
D1	8.82	9.02	0.3472	0.3551	Q	2.60	3.00	0.1023	0.1181
D2	12.43	12.83	0.4893	0.5051	Q1	1.73 REF		0.0681 REF	
E	9.96	10.36	0.3921	0.4078	R	1.82 REF		0.0716 REF	
E1	6.86	8.89	0.2700	0.3500					