

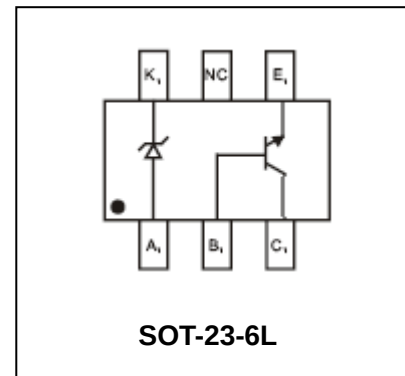
VOLTAGE REFERENCE ARRAY

DVRN6056CU

FEATURES

- Epitaxial planar die construction
- Ideally suited for automated assembly processes
- RoHS compliant with Halogen-free

HF



ORDERING INFORMATION

Type No.	Marking	Package Code
DVRN6056CU	AH2	SOT-23-6L

MAXIMUM RATING,NPN Transistor Element @ $T_A = 25^\circ\text{C}$ unless otherwise specified

Symbol	Parameter	Value	Unit
V_{CBO}	Collector-Base Voltage	60	V
V_{CEO}	Collector-Emitter Voltage	40	V
V_{EBO}	Emitter-Base Voltage	6	V
I_C	Collector Current -Continuous	600	mA

MAXIMUM RATING,Zener Element @ $T_A = 25^\circ\text{C}$ unless otherwise specified

Symbol	Parameter	Value	Unit
V_F	Forward Voltage@ $I_F=10\text{mA}$	0.9	V

THERMAL CHARACTERISTICS@ $T_A = 25^\circ\text{C}$ unless otherwise specified

Symbol	Parameter	Value	Unit
P_D	Power Dissipation	300	mW
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient	417	$^\circ\text{C}/\text{W}$
$R_{\theta JC}$	Thermal Resistance, Junction to Case	218	$^\circ\text{C}/\text{W}$
T_J, T_{stg}	Junction and Storage Temperature	-55 to +150	$^\circ\text{C}$

VOLTAGE REFERENCE ARRAY

DVRN6056CU

ELECTRICAL CHARACTERISTICS, NPN Transistor Element

@ T_A = 25°C unless otherwise specified

Parameter	Symbol	Test conditions	MIN	MAX	UNIT
Collector-base breakdown voltage	V _{(BR)CBO}	I _C =50μA, I _E =0	60	-	V
Collector-emitter breakdown voltage	V _{(BR)CEO}	I _C =500μA, I _B =0	40	-	V
Emitter-base breakdown voltage	V _{(BR)EBO}	I _E =50μA, I _C =0	6	-	V
Collector cut-off current	I _{CEX}	V _{CE} =35V I _{EB(off)} =0.4V	-	50	nA
Base Cut-off Current	I _{BL}	V _{CE} =35V I _{EB(off)} =0.4V	-	50	nA
DC current gain	h _{FE}	V _{CE} =1V I _C =100μA	20	-	-
		V _{CE} =1V I _C =1.0mA	40	-	
		V _{CE} =1V I _C =10mA	80	-	
		V _{CE} =1V I _C =150mA	100	300	
		V _{CE} =2V I _C =500mA	40	-	
Collector-emitter saturation voltage	V _{CE(sat)}	I _C =150mA I _B =15mA I _C =500mA I _B =50mA	-	0.4 0.75	V
Base-emitter saturation voltage	V _{BE(sat)}	I _C =150mA I _B =15mA I _C =500mA I _B =50mA	0.75 -	0.95 1.2	V
Transition frequency	f _T	V _{CE} =10V I _C =20mA f=100MHz	250		MHz
Output Capacitance	C _{cb}	V _{CB} =5V, f=1.0MHz, I _E =0	-	6.5	pF
Input Capacitance	C _{eb}	V _{EB} =0.5V, f=1.0MHz, I _C =0	-	30	pF
Input Impedance	h _{ie}	V _{CE} =10V, f=1.0kHz, I _C =100μA	1.0	15	kΩ
Voltage Feedback Ratio	h _{re}		0.1	8.0	*10 ⁻⁴
Small Signal Current Gain	h _{fe}		40	500	-
Output Admittance	h _{oe}		1.0	30	us
Delay time	t _d	V _{CC} =30V, V _{BE(off)} =2.0V	-	15	ns
Rise time	t _r	I _C =150mA, I _{B1} =15mA	-	20	ns
Storage time	t _s	V _{CC} =30V, I _C =150mA	-	225	ns
Fall time	t _f	I _{B1} =I _{B2} =15mA	-	30	ns

ELECTRICAL CHARACTERISTICS, Zener Element

@ T_A = 25°C unless otherwise specified

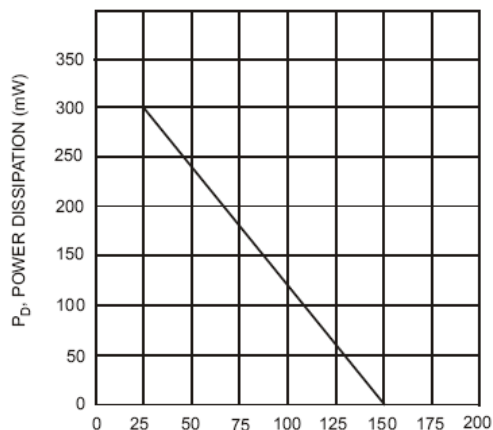
Zener Voltage Rang				Maximum Zener Impedance		Maximum Reverse Leakage Current	
V _Z @I _{ZT}			I _{ZT}	Z _{ZT} @I _{ZT}	Z _{ZK} @I _{ZK} =0.5mA	I _R	@V _R
Nom(V)	Min(V)	Max(V)	mA	Ω		μA	V
5.6	5.49	5.73	5	60	400	1.0	2.5

VOLTAGE REFERENCE ARRAY

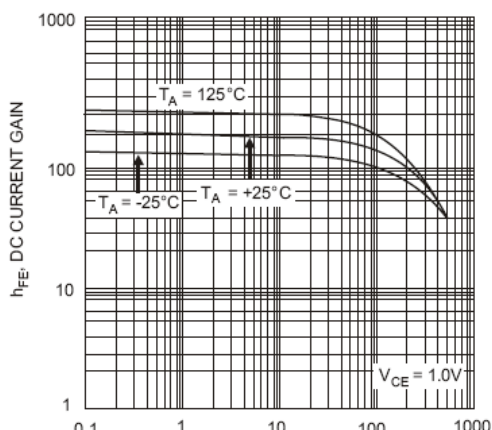
DVRN6056CU

TYPICAL CHARACTERISTICS @ $T_A=25^\circ\text{C}$ unless otherwise specified

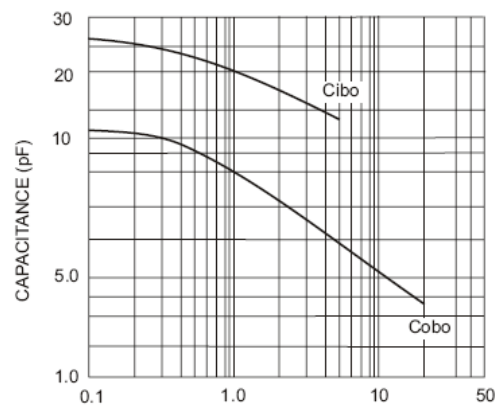
NPN Transistor Section



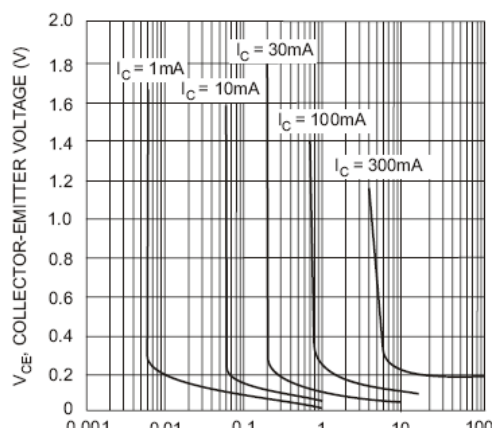
T_A , AMBIENT TEMPERATURE ($^\circ\text{C}$)
Fig. 1 Max Power Dissipation vs Ambient Temperature (Total Device)



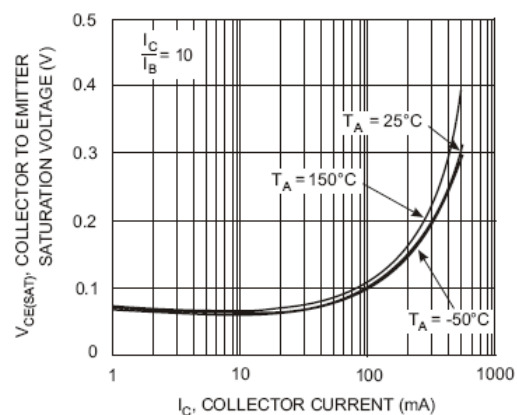
I_C , COLLECTOR CURRENT (mA)
Fig. 2 Typical DC Current Gain vs Collector Current



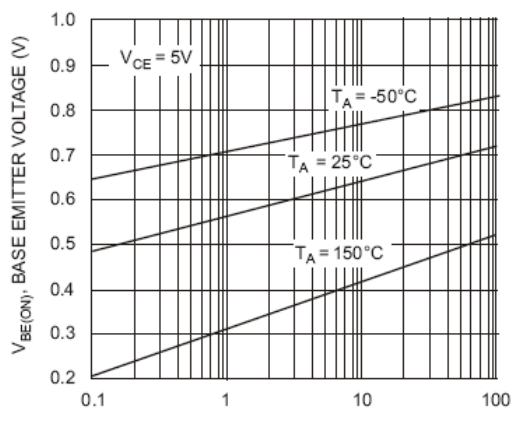
REVERSE VOLTS (V)
Fig. 3 Typical Capacitance



I_B , BASE CURRENT (mA)
Fig. 4 Typical Collector Saturation Region



I_C , COLLECTOR CURRENT (mA)
Fig. 5 Collector Emitter Saturation Voltage vs. Collector Current



I_C , COLLECTOR CURRENT (mA)
Fig. 6 Base Emitter Voltage vs. Collector Current

VOLTAGE REFERENCE ARRAY

DVRN6056CU

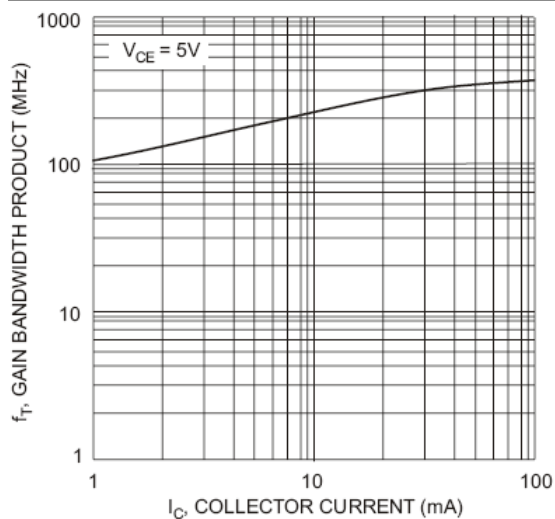


Fig. 7 Gain Bandwidth Product vs. Collector Current

Zener Section

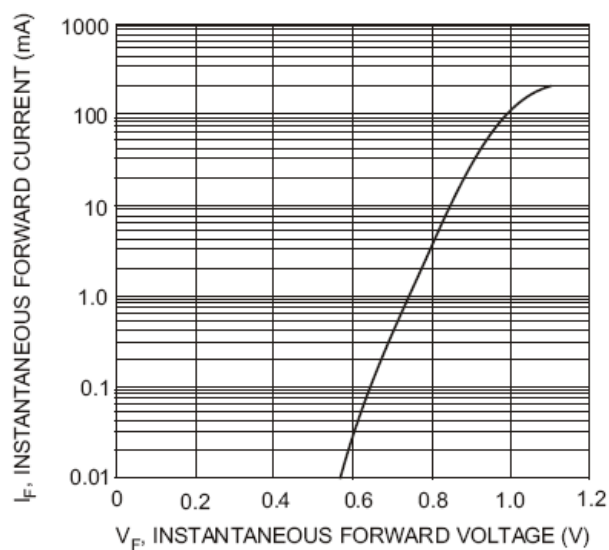


Fig. 8 Typical Forward Characteristics

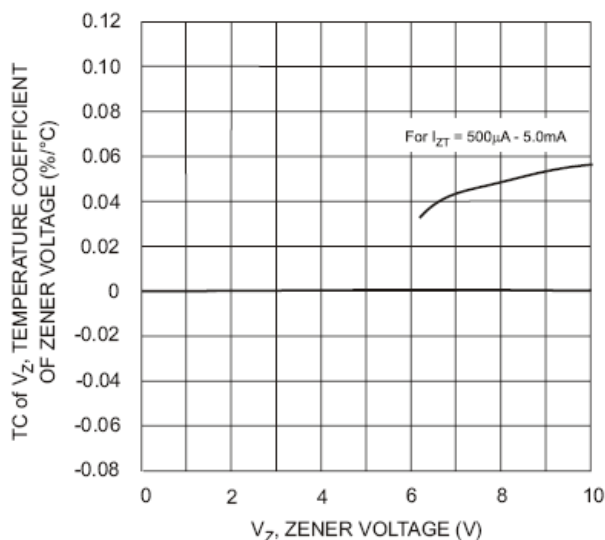


Fig. 9 Typical Temperature Coefficient of Zener Voltage vs. Zener Voltage, UDZ5V6B

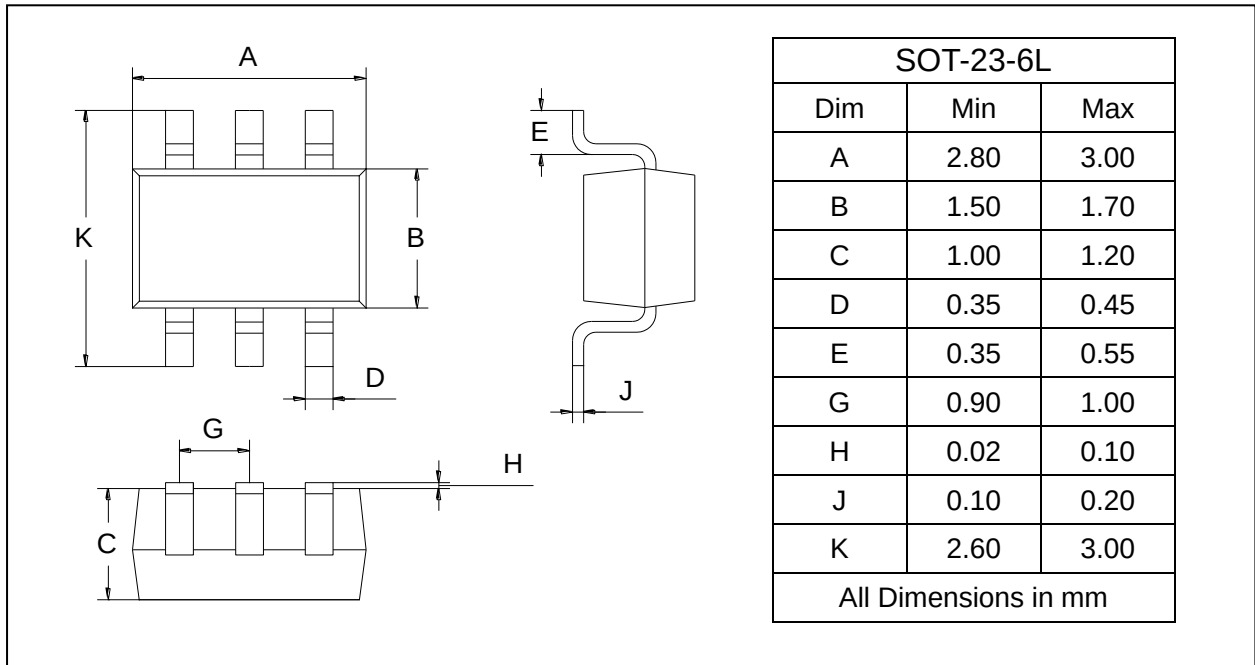
VOLTAGE REFERENCE ARRAY

DVRN6056CU

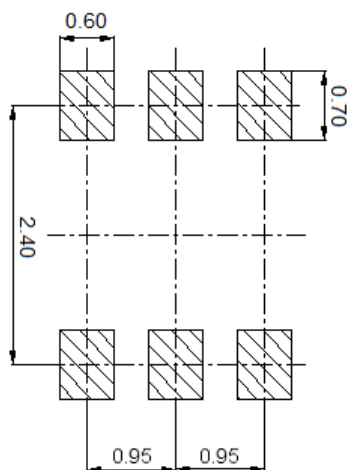
PACKAGE OUTLINE

Plastic surface mounted package

SOT-23-6L



SOLDERING FOOTPRINT



Unit : mm

PACKAGE INFORMATION

Device	Package	Shipping
DVRN6056CU	SOT-23-6L	3000 pcs / Tape & Reel