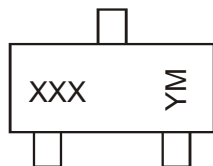


Marking Information



XXX = Product Type Marking Code, See Table Above
 YM = Date Code Marking
 Y = Year ex: I = 2021
 M = Month ex: 9 = September

Date Code Key

Year	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
Code	I	J	K	L	M	N	O	P	R	S	T	U

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Code	1	2	3	4	5	6	7	8	9	O	N	D

Absolute Maximum Ratings (@ T_A = +25°C, unless otherwise specified.)

Characteristic	Symbol	Value	Unit
Supply Voltage <Pin: (3) to (2)>	V _{CC}	50	V
Input Voltage <Pin: (1) to (2)>	V _{IN}	-10 to +10 -10 to +12 -10 to +30 -10 to +40 -5 to +5 -5 to +10 -5 to +12 -6 to +20	V
Input Voltage <Pin: (2) to (1)>	V _{EBO} (MAX)	5	V
Output Current	I _C	500	mA

Thermal Characteristics (@ T_A = +25°C, unless otherwise specified.)

Characteristic	Symbol	Value	Unit
Power Dissipation (Note 5)	P _D	200	mW
Thermal Resistance, Junction to Ambient Air (Note 5)	R _{θJA}	625	°C/W
Operating and Storage Temperature Range	T _J , T _{STG}	-55 to +150	°C

Note: 5. Mounted on FR4 PC board with recommended pad layout.

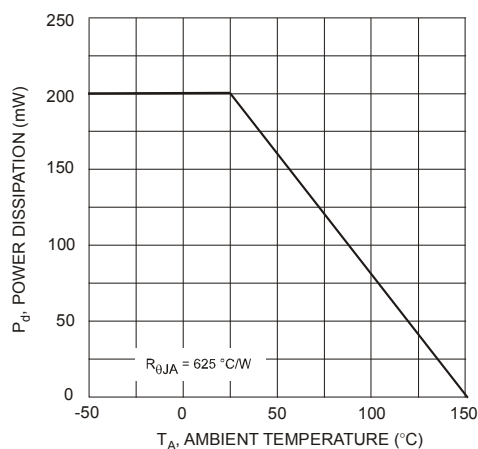


Fig. 1 Power Derating Curve

Electrical Characteristics - R1, R2 Types (@ T_A = +25°C, unless otherwise specified.)

Characteristic		Symbol	Min	Typ	Max	Unit	Test Condition
Input Voltage	DDTD113EC DDTD123EC DDTD143EC DDTD114EC DDTD122JC DDTD113ZC DDTD123YC DDTD133HC	V _{I(off)}	0.5 0.5 0.5 0.5 0.5 0.3 0.3 0.3	—	—	V	V _{CC} = 5V, I _O = 100μA
	DDTD113EC DDTD123EC DDTD143EC DDTD114EC DDTD122JC DDTD113ZC DDTD123YC DDTD133HC	V _{I(on)}	—	—	3.0 3.0 3.0 3.0 3.0 2.0 2.0 2.0	V	V _O = 0.3V, I _O = 20mA V _O = 0.3V, I _O = 20mA V _O = 0.3V, I _O = 20mA V _O = 0.3V, I _O = 10mA V _O = 0.3V, I _O = 30mA V _O = 0.3V, I _O = 20mA V _O = 0.3V, I _O = 20mA V _O = 0.3V, I _O = 20mA
Output Voltage		V _{O(on)}	—	—	0.3V	V	I _O /I _I = 50mA/2.5mA
Input Current	DDTD113EC DDTD123EC DDTD143EC DDTD114EC DDTD122JC DDTD113ZC DDTD123YC DDTD133HC	I _I	—	—	7.2 3.8 1.8 0.88 28 7.2 3.6 2.4	mA	V _I = 5V
Output Current		I _{O(off)}	—	—	0.5	μA	V _{CC} = 50V, V _I = 0V
DC Current Gain	DDTD113EC DDTD123EC DDTD143EC DDTD114EC DDTD122JC DDTD113ZC DDTD123YC DDTD133HC	G _I	33 39 47 56 47 56 56 56	—	—	—	V _O = 5V, I _O = 50mA
Gain-Bandwidth Product (Note 6)		f _T	—	200	—	MHz	V _{CE} = 10V, I _E = 5mA, f = 100MHz

Electrical Characteristics - R1- Only, R2- Only Types (@ T_A = +25°C, unless otherwise specified.)

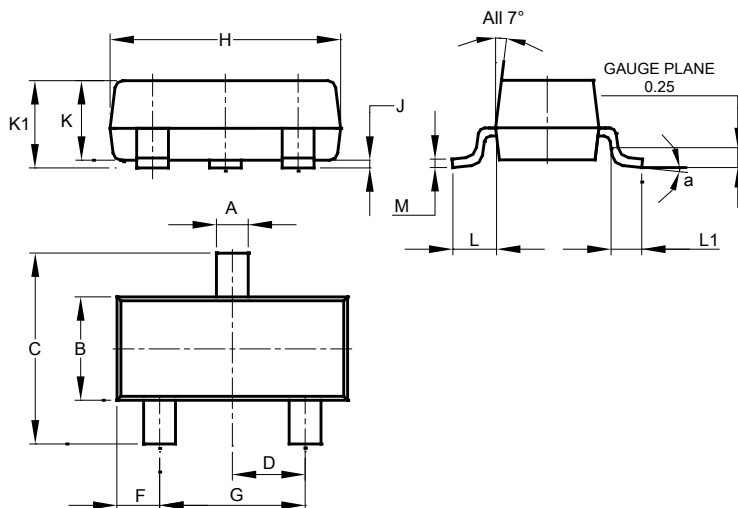
Characteristic		Symbol	Min	Typ	Max	Unit	Test Condition
Collector-Base Breakdown Voltage		BV _{CBO}	50	—	—	V	I _C = 50μA
Collector-Emitter Breakdown Voltage		BV _{CEO}	40	—	—	V	I _C = 1mA
Emitter-Base Breakdown Voltage	DDTD123TC DDTD143TC DDTD114TC DDTD114GC	BV _{EBO}	5	—	—	V	I _E = 50μA I _E = 50μA I _E = 50μA I _E = 720μA
Collector Cut-Off Current		I _{CBO}	—	—	0.5	μA	V _{CB} = 50V
Emitter Cut-Off Current	DDTD123TC DDTD143TC DDTD114TC DDTD114GC	I _{EBO}	— — — 300	—	0.5 0.5 0.5 580	μA	V _{EB} = 4V
Collector-Emitter Saturation Voltage		V _{CE(sat)}	—	—	0.3	V	I _C = 50mA, I _B = 2.5mA
DC Current Transfer Ratio	DDTD123TC DDTD143TC DDTD114TC DDTD114GC	h _{FE}	100 100 100 56	250 250 250 —	600 600 600 —	—	I _C = 5mA, V _{CE} = 5V
Gain-Bandwidth Product (Note 6)		f _T	—	200	—	MHz	V _{CE} = 10V, I _E = 5mA, f = 100MHz

Note: 6. Transistor – For Reference Only

Package Outline Dimensions

Please see <http://www.diodes.com/package-outlines.html> for the latest version.

SOT23

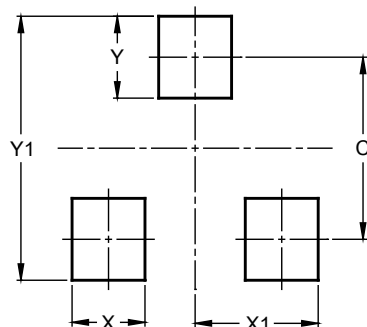


SOT23			
Dim	Min	Max	Typ
A	0.37	0.51	0.40
B	1.20	1.40	1.30
C	2.30	2.50	2.40
D	0.89	1.03	0.915
F	0.45	0.60	0.535
G	1.78	2.05	1.83
H	2.80	3.00	2.90
J	0.013	0.10	0.05
K	0.890	1.00	0.975
K1	0.903	1.10	1.025
L	0.45	0.61	0.55
L1	0.25	0.55	0.40
M	0.085	0.150	0.110
a	0°	8°	--
All Dimensions in mm			

Suggested Pad Layout

Please see <http://www.diodes.com/package-outlines.html> for the latest version.

SOT23



Dimensions	Value (in mm)
C	2.0
X	0.8
X1	1.35
Y	0.9
Y1	2.9

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