

Features

- DTC114E and 2SA2018 Are Housed Independently In a Package
- Mounting Cost and Area Can Be Cut In Half
- Halogen Free. "Green" Device (Note 1)
- Moisture Sensitivity Level 1
- Epoxy Meets UL 94 V-0 Flammability Rating
- Lead Free Finish/RoHS Compliant ("P" Suffix Designates RoHS Compliant. See Ordering Information)

Maximum Ratings @ 25°C Unless Otherwise Specified

TR1

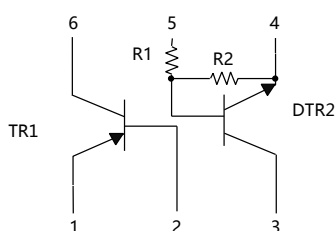
Parameter	Symbol	Value	Unit
Collector-Emitter Voltage	V_{CEO}	-12	V
Collector-Base Voltage	V_{CBO}	-15	V
Emitter-Base Voltage	V_{EBO}	-6	V
Collector Current-Continuous	I_C	-500	mA
Collector Dissipation	P_C	150	mW
Junction Temperature	T_J	150	°C
Storage Temperature Range	T_{STG}	-55 to +150	°C

DTR2

Parameter	Symbol	Value	Unit
Supply Voltage	V_{CC}	50	V
Input Voltage	V_{IN}	-10~40	V
Output Current	I_O	50	mA
	$I_{C(Max)}$	100	mA
Power Dissipation	P_D	150	mW
Junction Temperature	T_J	150	°C
Storage Temperature	T_{stg}	-55~150	°C

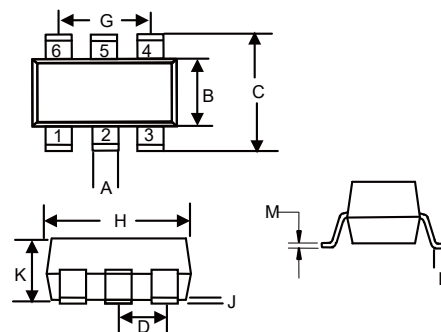
Note: 1. Halogen free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.

Internal Structure



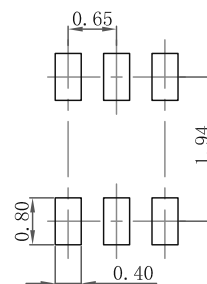
Dual Digital Transistor

SOT-363



DIMENSIONS					
DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	0.006	0.014	0.15	0.35	
B	0.045	0.053	1.15	1.35	
C	0.079	0.096	2.00	2.45	
D	0.026		0.65		TYP
G	0.047	0.055	1.20	1.40	
H	0.071	0.087	1.80	2.20	
J	-----	0.004	-----	0.10	
K	0.031	0.043	0.80	1.10	
L	0.010	0.018	0.26	0.46	
M	0.003	0.006	0.08	0.15	

Suggested Solder Pad Layout



Electrical Characteristics @ 25°C Unless Otherwise Specified

TR1

Parameter	Symbol	Min	Typ	Max	Units	Conditions
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	-15	---	---	V	$I_C = -10\mu A, I_E = 0$
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	-12	---	---	V	$I_C = -1mA, I_B = 0$
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	-6	---	---	V	$I_E = -10\mu A, I_C = 0$
Collector Cut-off Current	I_{CBO}	---	---	-0.1	μA	$V_{CB} = -15V, I_E = 0$
Emitter Cut-off Current	I_{EBO}	---	---	-0.1	μA	$V_{EB} = -6V, I_C = 0$
DC Current Gain	h_{FE}	270	---	680	---	$I_C = -10mA, V_{CE} = -2V$
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	---	---	-0.25	V	$I_C = -200mA, I_B = -10mA$
Transition Frequency	f_T	---	260	---	MHz	$V_{CE} = -2V, I_C = -10mA, f = 100MHz$
Collector Output Capacitance	C_{ob}	---	6.5	---	pF	$V_{CB} = -10.0V, I_E = 0, f = 1MHz$

DTR2

Parameter	Symbol	Min	Typ	Max	Unit	Conditions
Input Voltage	$V_{I(off)}$	0.5	---	---	V	$V_{CC} = 5V, I_O = 100\mu A$
	$V_{I(on)}$	---	---	3	V	$V_O = 0.3V, I_O = 10mA$
Output Voltage	$V_{O(on)}$	---	---	0.3	V	$I_O = 10mA, I_I = 0.5mA$
Input Current	I_I	---	---	0.88	mA	$V_I = 5V$
Output Current	$I_{O(off)}$	---	---	0.5	μA	$V_{CC} = 50V, V_I = 0$
DC Current Gain	G_I	30	---	---		$V_O = 5V, I_O = 5mA$
Input Resistance	R_1	7	10	13	K Ω	
Resistance Ratio	R_2/R_1	0.8	1.0	1.2		
Transition Frequency	f_T	---	250	---	MHz	$V_{CE} = 10V, I_E = -5mA, f = 100MHz$

Curve Characteristics

Fig. 1 - TR1 Static Characteristics

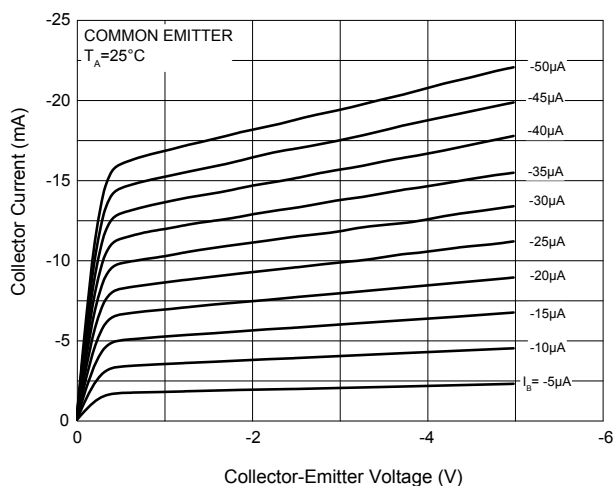


Fig. 2 - TR1 DC Current Gain Characteristics

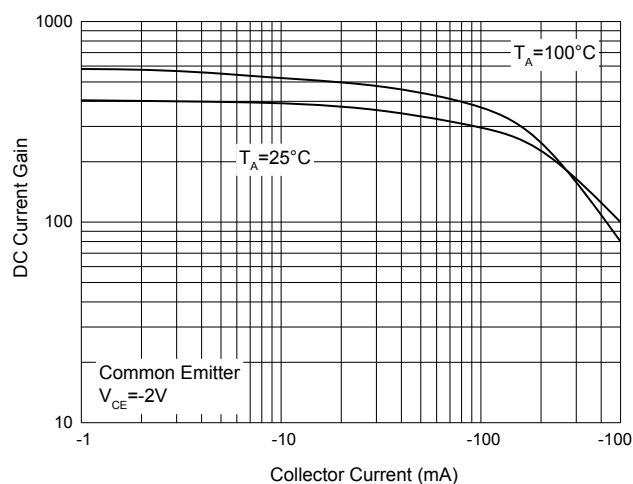


Fig. 3 - TR1 Collector-Emitter Saturation Voltage Characteristics

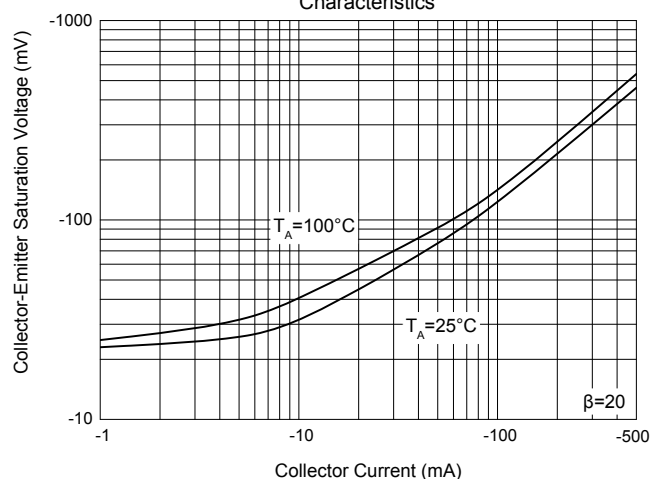


Fig. 4 - DTR2 DC Current Gain Characteristics

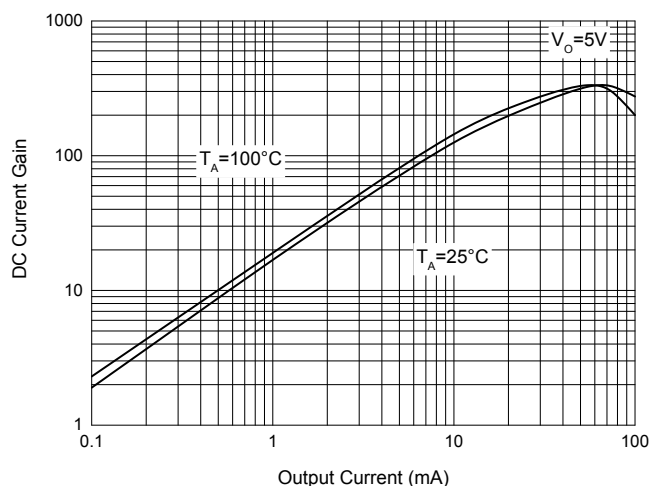


Fig. 5 - DTR2 Input Voltage (on) Characteristics

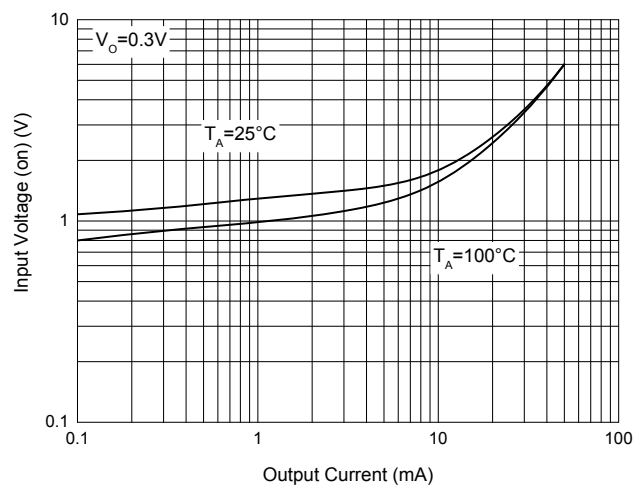
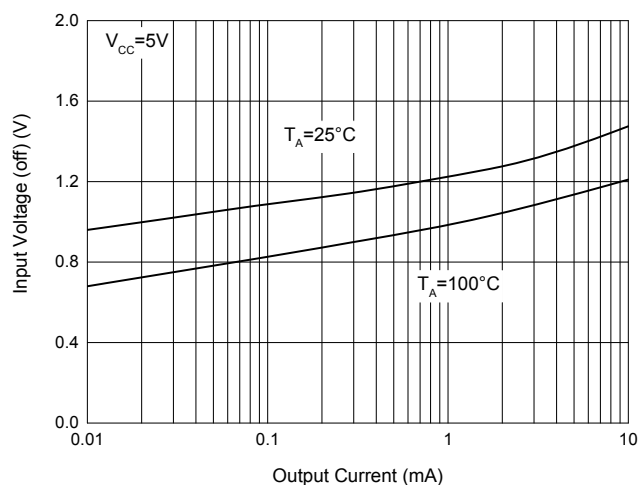


Fig. 6 - DTR2 Input Voltage (off) Characteristics



Curve Characteristics

Fig. 7 - DTR2 Output Voltage Characteristics

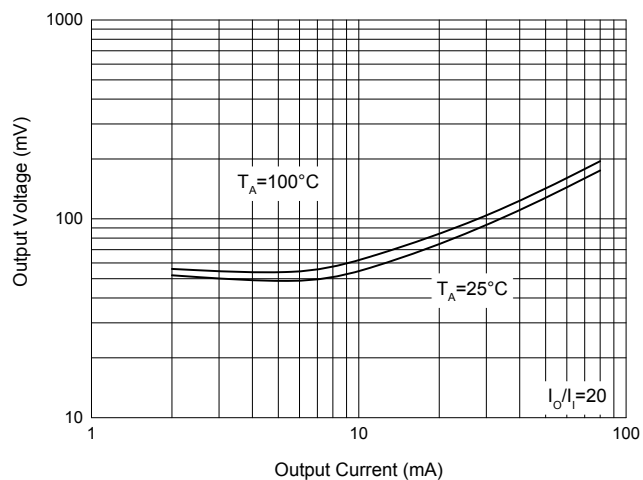
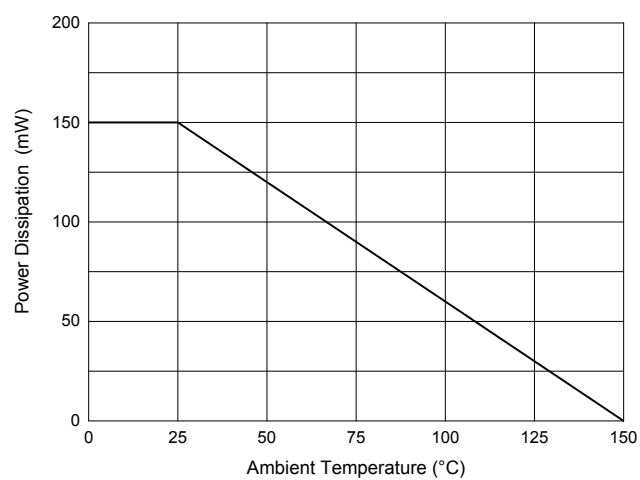


Fig. 8 - Power Derating Curve



Ordering Information

Device	Packing
Part Number-TP	Tape&Reel:3Kpcs/Reel

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