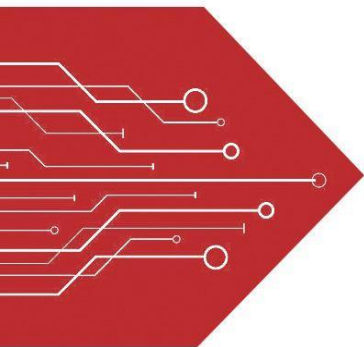


MSKSEMI

SEMICONDUCTOR



ESD



TVS



TSS



MOV

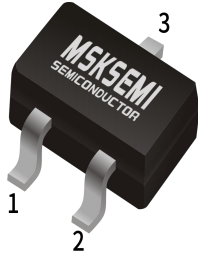


GDT



PLED

Product data sheet

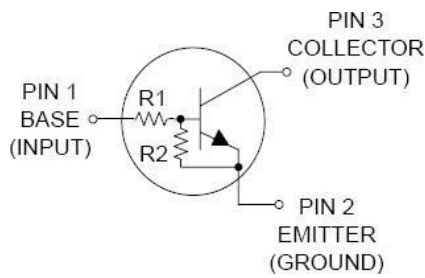


SOT-523

Features:

- Simplifies Circuit Design
- Reduces Board Space
- Reduces Component Count
- RoHS Compliant
- Green EMC
- Matte Tin(Sn) Lead Finish
- Weight: approx. 0.002g

Electrical Symbol:



Absolute Maximum Ratings ($T_A = 25^\circ\text{C}$ unless otherwise noted)

Symbol	Parameter	Value	Units
V_{CBO}	Collector-Base Voltage	50	V
V_{CEO}	Collector-Emitter Voltage	50	V
I_C	Collector Current	100	mA
P_D	Power Dissipation	150	mW
$R_{\theta JA}$	Thermal Resistance from Junction to Ambient	600	$^\circ\text{C} / \text{W}$
$T_J T_{STG}$	Junction & Storage Temperature Range	-55 to +150	$^\circ\text{C}$

These ratings are limiting values above which the serviceability of the device may be impaired.

Device Marking & Resistor Values:

P/N	Mark	R1 (KΩ)	R2 (KΩ)
DTC114EE-MS	24	10	10
DTC124EE-MS	25	22	22
DTC144EE-MS	26	47	47
DTC114YE-MS	64	10	47
DTC114TE-MS	04	10	∞
DTC143TE-MS	03	4.7	∞
DTC123EE-MS	22	2.2	2.2
DTC143EE-MS	23	4.7	4.7
DTC143ZE-MS	E23	4.7	47
DTC124XE-MS	45	22	47
DTC123JE-MS	E42	2.2	47

Electrical Characteristics ($T_A = 25^\circ\text{C}$ unless otherwise noted)

Off Characteristics

Symbol	Parameter	Test Condition	Limits			Unit
			Min	Typ	Max	
I_{CBO}	Collector-Base Cutoff Current	$V_{CB} = 50V, I_E = 0A$	-	-	100	nA
I_{CEO}	Collector-Emitter Cutoff Current	$V_{CE} = 50V, I_B = 0A$	-	-	500	nA
I_{EBO}	Emitter-Base Cutoff Current	$V_{EB} = 6.0V, I_C = 0A$				
	DTC114EE-MS		-	-	0.50	mA
	DTC124EE-MS		-	-	0.20	
	DTC144EE-MS		-	-	0.10	
	DTC114YE-MS		-	-	0.20	
	DTC114TE-MS		-	-	0.90	
	DTC143TE-MS		-	-	1.90	
	DTC123EE-MS		-	-	2.30	
	DTC143EE-MS		-	-	1.50	
	DTC143ZE-MS		-	-	0.18	
	DTC124XE-MS		-	-	0.13	
	DTC123JE-MS		-	-	0.20	
$V_{(BR)CBO}$	Collector-Base Breakdown Voltage	$I_C = 10\mu A, I_E = 0A$	50	-	-	Volts
$V_{(BR)CEO}$	Collector-Emitter Breakdown Voltage (Note 1)	$I_C = 2.0mA, I_B = 0A$	50	-	-	Volts

Note 1: Pulse Test. Pulse width <300us, Duty cycle < 2.0%)

On Characteristics (Note 1)

Symbol	Parameter	Test Condition	Limits			Unit
			Min	Typ	Max	
H _{FE}	DC Current Gain	V _{CE} =10V, I _C =5.0mA				
	DTC114EE-MS		35	60	--	
	DTC124EE-MS		60	100	--	
	DTC144EE-MS		80	140	--	
	DTC114YE-MS		80	140	--	
	DTC114TE-MS		160	350	--	
	DTC143TE-MS		160	350	--	
	DTC123EE-MS		8.0	15	--	
	DTC143EE-MS		15	30	--	
	DTC143ZE-MS		80	200	--	
	DTC124XE-MS		80	150	--	
DTC123JE-MS		80	140	--		
V _{CE(sat)}	Collector-Emitter Saturation Voltage					
	DTC114EE-MS	I _C =10mA, I _B =0.3mA				
	DTC124EE-MS	I _C =10mA, I _B =0.3mA				
	DTC144EE-MS	I _C =10mA, I _B =0.3mA				
	DTC114YE-MS	I _C =10mA, I _B =0.3mA				
	DTC114TE-MS	I _C =10mA, I _B =1mA	--	--	0.25	Volts
	DTC143TE-MS	I _C =10mA, I _B =1mA				
	DTC123EE-MS	I _C =10mA, I _B =5mA				
	DTC143EE-MS	I _C =10mA, I _B =1mA				
	DTC143ZE-MS	I _C =10mA, I _B =1mA				
	DTC124XE-MS	I _C =10mA, I _B =1mA				
DTC123JE-MS	I _C =10mA, I _B =0.3mA					
V _{OL}	Output Voltage (on)	R _L = 1.0KΩ				
	DTC114EE-MS	V _{CC} =5.0V, V _B =2.5V				
	DTC124EE-MS	V _{CC} =5.0V, V _B =2.5V				
	DTC144EE-MS	V _{CC} =5.0V, V _B =3.5V				
	DTC114YE-MS	V _{CC} =5.0V, V _B =2.5V				
	DTC114TE-MS	V _{CC} =5.0V, V _B =2.5V	--	--	0.20	Volts
	DTC143TE-MS	V _{CC} =5.0V, V _B =2.5V				
	DTC123EE--MS	V _{CC} =5.0V, V _B =2.5V				
	DTC143EE--MS	V _{CC} =5.0V, V _B =2.5V				
	DTC143ZE--MS	V _{CC} =5.0V, V _B =2.5V				
	DTC124XE--MS	V _{CC} =5.0V, V _B =2.5V				
	DTC123JE--MS	V _{CC} =5.0V, V _B =2.5V				

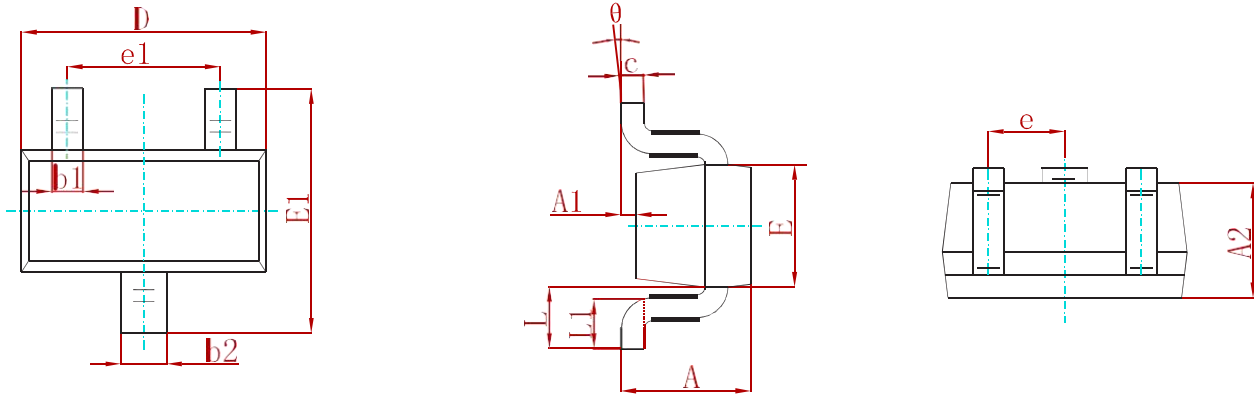
On Characteristics

Symbol	Parameter	Test Condition	Limits			Unit
			Min	Typ	Max	
V _{OH}	Output Voltage (on)	R _L = 1.0KΩ	4.9	--	--	Volts
	DTC114EE-MS	V _{CC} =5.0V, V _B =0.5V				
	DTC124EE-MS	V _{CC} =5.0V, V _B =0.5V				
	DTC144EE-MS	V _{CC} =5.0V, V _B =0.5V				
	DTC114YE-MS	V _{CC} =5.0V, V _B =0.5V				
	DTC114TE-MS	V _{CC} =5.0V, V _B =0.25V				
	DTC143TE-MS	V _{CC} =5.0V, V _B =0.25V				
	DTC123EE-MS	V _{CC} =5.0V, V _B =0.5V				
	DTC143EE-MS	V _{CC} =5.0V, V _B =0.5V				
	DTC143ZE-MS	V _{CC} =5.0V, V _B =0.25V				
	DTC124XE-MS	V _{CC} =5.0V, V _B =0.5V				
	DTC123JE-MS	V _{CC} =5.0V, V _B =0.5V				

Electrical Characteristics (T_A = 25°C unless otherwise noted)

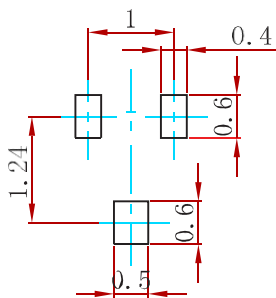
Symbol	Characteristic	Min	Typ	Max	Unit	
R1	Input Resistor	DTC114EE--MS	7.0	10	13	KΩ
		DTC124EE-MS	15.4	22	28.6	
		DTC144EE-MS	32.9	47	61.1	
		DTC114YE-MS	7.0	10	13	
		DTC114TE-MS	7.0	10	13	
		DTC143TE-MS	3.3	4.7	6.1	
		DTC123EE-MS	1.5	2.2	2.9	
		DTC143EE-MS	3.3	4.7	6.1	
		DTC143ZE-MS	3.3	4.7	6.1	
		DTC124XE-MS	15.4	22	28.6	
		DTC123JE-MS	1.54	2.2	2.86	
R1/R2	Resistor Ratio	DTC114EE-MS	0.8	1.0	1.2	--
		DTC124EE-MS	0.8	1.0	1.2	
		DTC144EE-MS	0.8	1.0	1.2	
		DTC114YE-MS	0.17	0.21	0.25	
		DTC114TE-MS	-	-	-	
		DTC143TE-MS	-	-	-	
		DTC123EE-MS	0.8	1.0	1.2	
		DTC143EE-MS	0.8	1.0	1.2	
		DTC143ZE-MS	0.055	0.1	0.185	
		DTC124XE-MS	0.38	0.47	0.56	
		DTC123JE-MS	0.038	0.047	0.056	

PACKAGE MECHANICAL DATA



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.700	0.900	0.028	0.035
A1	0.000	0.100	0.000	0.004
A2	0.700	0.800	0.028	0.031
b1	0.150	0.250	0.006	0.010
b2	0.250	0.350	0.010	0.014
c	0.100	0.200	0.004	0.008
D	1.500	1.700	0.059	0.067
E	0.700	0.900	0.028	0.035
E1	1.450	1.750	0.057	0.069
e	0.500 TYP.		0.020 TYP.	
e1	0.900	1.100	0.035	0.043
L	0.400 REF.		0.016 REF.	
L1	0.260	0.460	0.010	0.018
theta	0°	8°	0°	8°

Suggested Pad Layout



- Note:
1. Controlling dimension: in millimeters.
 2. General tolerance: ±0.05mm.
 3. The pad layout is for reference purposes only.

REEL SPECIFICATION

P/N	PKG	QTY
DTCXXXXX-MS	SOT-523	3000

Attention

- Any and all MSKSEMI Semiconductor products described or contained herein do not have specifications that can handle applications that require extremely high levels of reliability, such as life-support systems, aircraft's control systems, or other applications whose failure can be reasonably expected to result in serious physical and/or material damage. Consult with your MSKSEMI Semiconductor representative nearest you before using any MSKSEMI Semiconductor products described or contained herein in such applications.
- MSKSEMI Semiconductor assumes no responsibility for equipment failures that result from using products at values that exceed, even momentarily, rated values (such as maximum ratings, operating condition ranges, or other parameters) listed in products specifications of any and all MSKSEMI Semiconductor products described or contained herein.
- Specifications of any and all MSKSEMI Semiconductor products described or contained herein stipulate the performance, characteristics, and functions of the described products in the independent state, and are not guarantees of the performance, characteristics, and functions of the described products as mounted in the customer's products or equipment. To verify symptoms and states that cannot be evaluated in an independent device, the customer should always evaluate and test devices mounted in the customer's products or equipment.
- MSKSEMI Semiconductor strives to supply high-quality high-reliability products. However, any and all semiconductor products fail with some probability. It is possible that these probabilistic failures could give rise to accidents or events that could endanger human lives, that could give rise to smoke or fire, or that could cause damage to other property. When designing equipment, adopt safety measures so that these kinds of accidents or events cannot occur. Such measures include but are not limited to protective circuits and error prevention circuits for safe design, redundant design, and structural design.
- In the event that any or all MSKSEMI Semiconductor products (including technical data, services) described or contained herein are controlled under any of applicable local export control laws and regulations, such products must not be exported without obtaining the export license from the authorities concerned in accordance with the above law.
- No part of this publication may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopying and recording, or any information storage or retrieval system, or otherwise, without the prior written permission of MSKSEMI Semiconductor.
- Information (including circuit diagrams and circuit parameters) herein is for example only ; it is not guaranteed for volume production. MSKSEMI Semiconductor believes information herein is accurate and reliable, but no guarantees are made or implied regarding its use or any infringements of intellectual property rights or other rights of third parties.
- Any and all information described or contained herein are subject to change without notice due to product/technology improvement, etc. When designing equipment, refer to the "Delivery Specification" for the MSKSEMI Semiconductor product that you intend to use.

X-ON Electronics

Largest Supplier of Electrical and Electronic Components

Click to view similar products for [Bipolar Transistors - Pre-Biased](#) category:

Click to view products by [MSKSEMI](#) manufacturer:

Other Similar products are found below :

[RN1607\(TE85L,F\)](#) [DRC9A14E0L](#) [DTA124GKAT146](#) [DTA144WETL](#) [DTA144WKAT146](#) [DTC113EET1G](#) [DTC115TETL](#)
[DTC115TKAT146](#) [DTC144VUAT106](#) [MUN5241T1G](#) [BCR158WH6327XTSA1](#) [NSBA114TDP6T5G](#) [SMUN5330DW1T1G](#)
[SSVMUN5312DW1T2G](#) [RN1303\(TE85L,F\)](#) [RN1306\(TE85L,F\)](#) [RN4605\(TE85L,F\)](#) [TTEPROTOTYPE79](#) [UMC3NTR](#) [EMH15T2R](#)
[SMUN2214T3G](#) [SMUN5113DW1T1G](#) [SMUN5335DW1T1G](#) [NSBC143ZPDP6T5G](#) [NSVMUN5113DW1T3G](#) [SMUN5230DW1T1G](#)
[SMUN2214T1G](#) [FMA7AT148](#) [DTC123TKAT146](#) [DTC114EUA-TP](#) [NSVDTA114EET1G](#) [SMUN5237DW1T1G](#) [SMUN5213DW1T1G](#)
[SMUN5114DW1T1G](#) [SMUN2111T1G](#) [DTC124ECA-TP](#) [DTC123TM3T5G](#) [DTA114ECA-TP](#) [DTA113EM3T5G](#) [DTC113EM3T5G](#)
[NSVMUN5135DW1T1G](#) [NSVMUN2237T1G](#) [NSVDTC143ZM3T5G](#) [SMUN5335DW1T2G](#) [SMUN5216DW1T1G](#) [NSVMUN5316DW1T1G](#)
[NSVMUN5215DW1T1G](#) [NSVMUN5213DW1T3G](#) [NSVMUN2112T1G](#) [NSVIMD10AMT1G](#)