

MBT35200MT1, SMBT35200MT1G

High Current Surface Mount PNP Silicon Switching Transistor for Load Management in Portable Applications

Features

- AEC-Q101 Qualified and PPAP Capable
- S Prefix for Automotive and Other Applications Requiring Unique Site and Control Change Requirements
- Pb-Free Packages are Available*

MAXIMUM RATINGS (T_A = 25°C)

Rating	Symbol	Max	Unit
Collector-Emitter Voltage	V _{CEO}	-35	Vdc
Collector-Base Voltage	V _{CBO}	-55	Vdc
Emitter-Base Voltage	V _{EBO}	-5.0	Vdc
Collector Current - Continuous	I _C	-2.0	Adc
Collector Current - Peak	I _{CM}	-5.0	A
Electrostatic Discharge	ESD	HBM Class 3 MM Class C	

THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Total Device Dissipation T _A = 25°C Derate above 25°C	P _D (Note 1)	625 5.0	mW mW/°C
Thermal Resistance, Junction-to-Ambient	R _{θJA} (Note 1)	200	°C/W
Total Device Dissipation T _A = 25°C Derate above 25°C	P _D (Note 2)	1.0 8.0	W mW/°C
Thermal Resistance, Junction-to-Ambient	R _{θJA} (Note 2)	120	°C/W
Thermal Resistance, Junction-to-Lead #1	R _{θJL}	80	°C/W
Total Device Dissipation (Single Pulse < 10 sec.)	P _{Dsingle} (Notes 2 & 3)	1.75	W
Junction and Storage Temperature Range	T _J , T _{stg}	-55 to +150	°C

Maximum ratings are those values beyond which device damage can occur. Maximum ratings applied to the device are individual stress limit values (not normal operating conditions) and are not valid simultaneously. If these limits are exceeded, device functional operation is not implied, damage may occur and reliability may be affected.

1. FR-4 @ Minimum Pad
2. FR-4 @ 1.0 X 1.0 inch Pad
3. ref: Figure 9

*For additional information on our Pb-Free strategy and soldering details, please download the ON Semiconductor Soldering and Mounting Techniques Reference Manual, SOLDERRM/D.



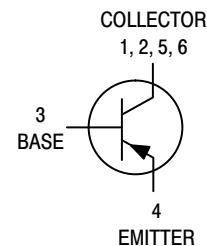
ON Semiconductor®

<http://onsemi.com>

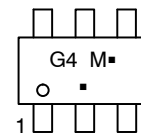
**35 VOLTS
2.0 AMPS
PNP TRANSISTOR**



**CASE 318G
TSOP-6
STYLE 6**



MARKING DIAGRAM



G4 = Specific Device Code
M = Date Code
▪ = Pb-Free Package

(Note: Microdot may be in either location)

ORDERING INFORMATION

Device	Package	Shipping†
MBT35200MT1	TSOP-6	3,000 / Tape & Reel
MBT35200MT1G	TSOP-6 (Pb-Free)	3,000 / Tape & Reel
SMBT35200MT1G	TSOP-6 (Pb-Free)	3,000 / Tape & Reel

†For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specifications Brochure, BRD8011/D.

MBT35200MT1, SMBT35200MT1G

ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise noted)

Characteristic	Symbol	Min	Typical	Max	Unit
OFF CHARACTERISTICS					
Collector – Emitter Breakdown Voltage (I _C = -10 mAdc, I _B = 0)	V _{(BR)CEO}	-35	-45	-	Vdc
Collector – Base Breakdown Voltage (I _C = -0.1 mAdc, I _E = 0)	V _{(BR)CBO}	-55	-65	-	Vdc
Emitter – Base Breakdown Voltage (I _E = -0.1 mAdc, I _C = 0)	V _{(BR)EBO}	-5.0	-7.0	-	Vdc
Collector Cutoff Current (V _{CB} = -35 Vdc, I _E = 0)	I _{CBO}	-	-0.03	-0.1	μAdc
Collector – Emitter Cutoff Current (V _{CEs} = -35 Vdc)	I _{CES}	-	-0.03	-0.1	μAdc
Emitter Cutoff Current (V _{EB} = -4.0 Vdc)	I _{EBO}	-	-0.01	-0.1	μAdc
ON CHARACTERISTICS					
DC Current Gain (Note 1) (I _C = -1.0 A, V _{CE} = -1.5 V) (I _C = -1.5 A, V _{CE} = -1.5 V) (I _C = -2.0 A, V _{CE} = -3.0 V)	h _{FE}	100 100 100	200 200 200	- 400 -	
Collector – Emitter Saturation Voltage (Note 1) (I _C = -0.8 A, I _B = -0.008 A) (I _C = -1.2 A, I _B = -0.012 A) (I _C = -2.0 A, I _B = -0.02 A)	V _{CE(sat)}	- - -	-0.125 -0.175 -0.260	-0.15 -0.20 -0.31	V
Base – Emitter Saturation Voltage (Note 1) (I _C = -1.2 A, I _B = -0.012 A)	V _{BE(sat)}	-	-0.68	-0.85	V
Base – Emitter Turn-on Voltage (Note 1) (I _C = -2.0 A, V _{CE} = -3.0 V)	V _{BE(on)}	-	-0.81	-0.875	V
Cutoff Frequency (I _C = -100 mA, V _{CE} = -5.0 V, f = 100 MHz)	f _T	100	-	-	MHz
Input Capacitance (V _{EB} = -0.5 V, f = 1.0 MHz)	C _{ibo}	-	600	650	pF
Output Capacitance (V _{CB} = -3.0 V, f = 1.0 MHz)	C _{obo}	-	85	100	pF
Turn-on Time (V _{CC} = -10 V, I _{B1} = -100 mA, I _C = -1 A, R _L = 3 Ω)	t _{on}	-	35	-	nS
Turn-off Time (V _{CC} = -10 V, I _{B1} = I _{B2} = -100 mA, I _C = 1 A, R _L = 3 Ω)	t _{off}	-	225	-	nS

1. Pulsed Condition: Pulse Width = 300 μsec, Duty Cycle ≤ 2%

MBT35200MT1, SMBT35200MT1G

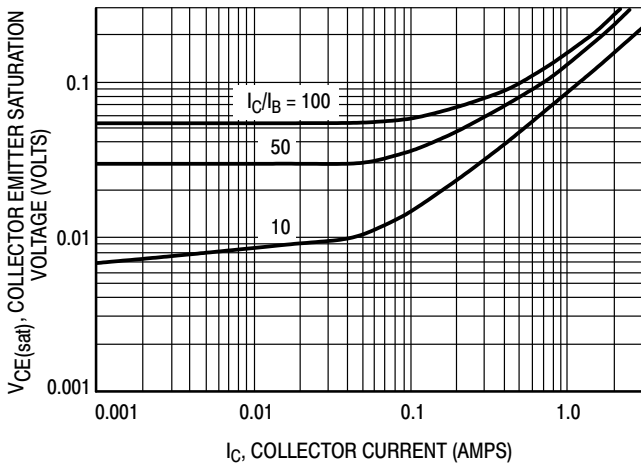


Figure 1. Collector Emitter Saturation Voltage versus Collector Current

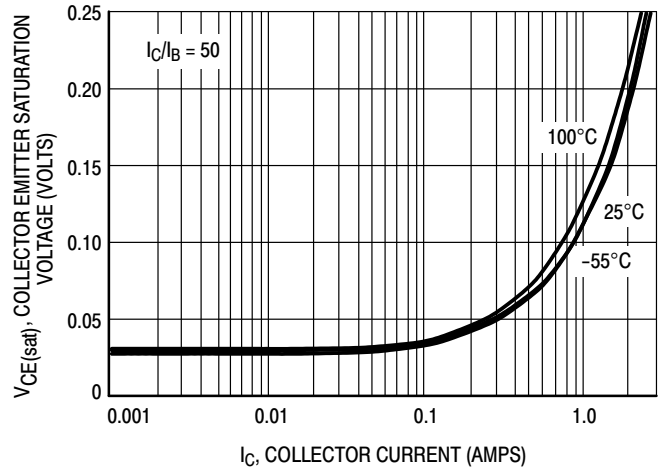


Figure 2. Collector Emitter Saturation Voltage versus Collector Current

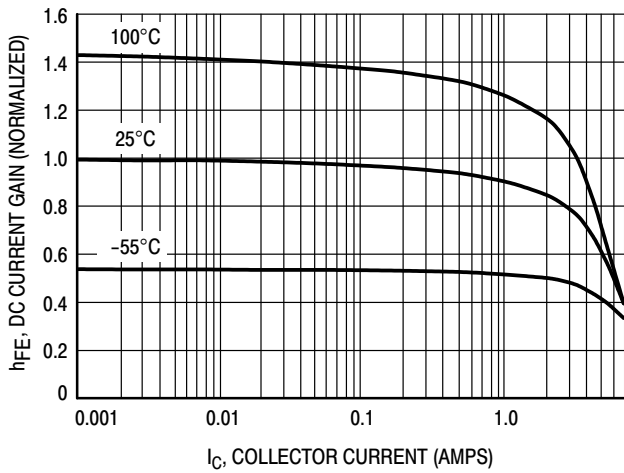


Figure 3. DC Current Gain versus Collector Current

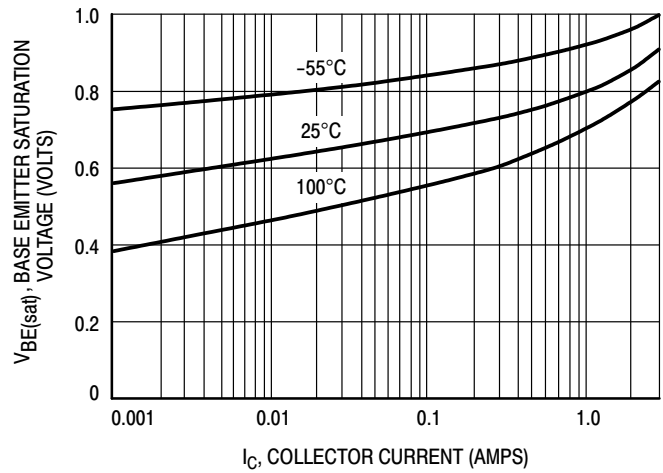


Figure 4. Base Emitter Saturation Voltage versus Collector Current

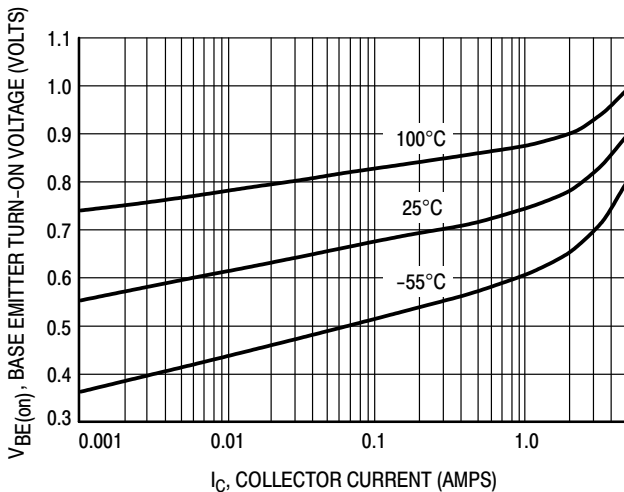


Figure 5. Base Emitter Turn-On Voltage versus Collector Current

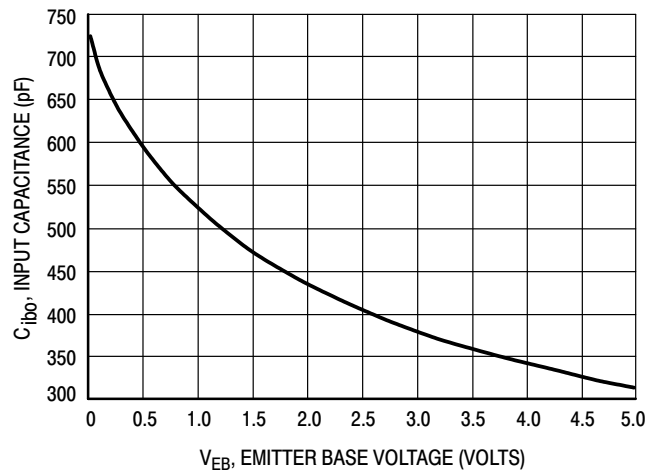


Figure 6. Input Capacitance

MBT35200MT1, SMBT35200MT1G

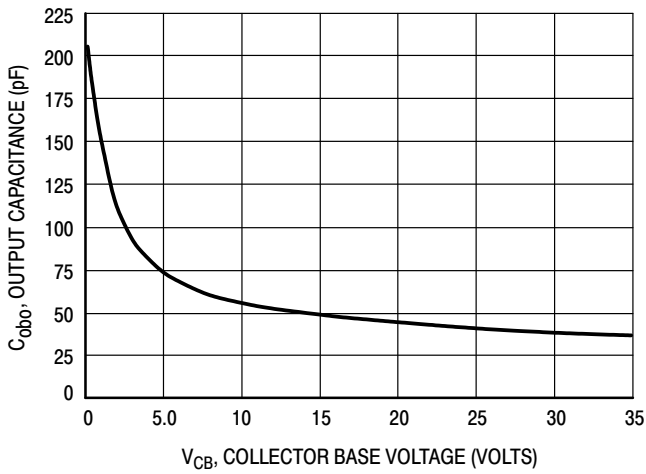


Figure 7. Output Capacitance

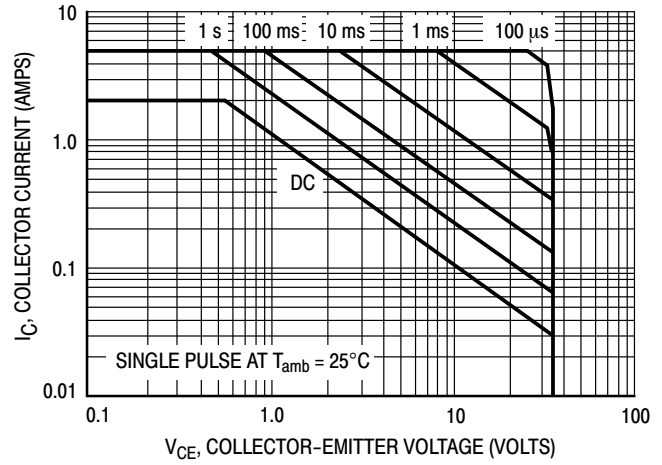


Figure 8. Safe Operating Area

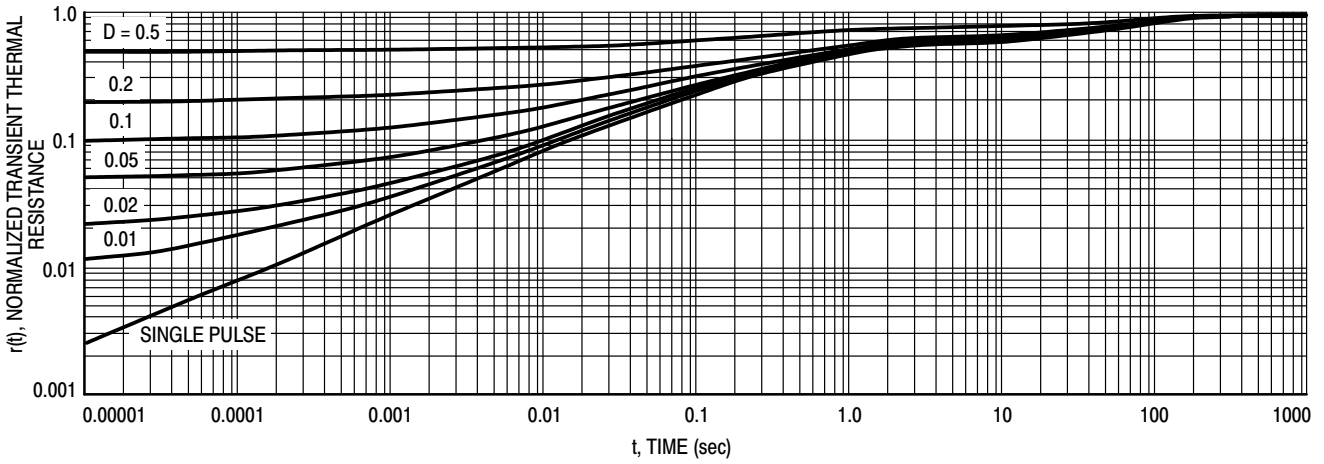
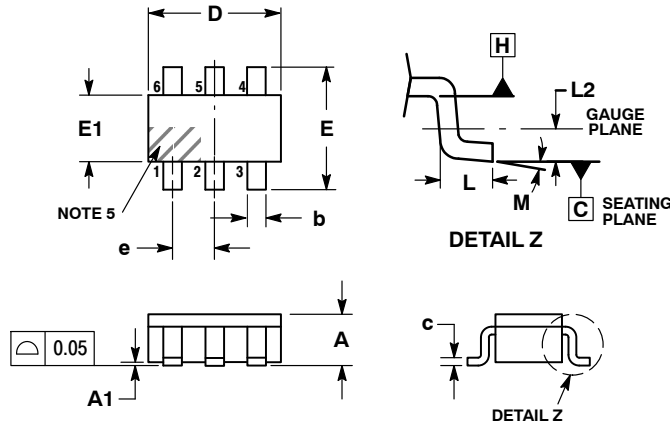


Figure 9. Normalized Thermal Response

MBT35200MT1, SMBT35200MT1G

PACKAGE DIMENSIONS

TSOP-6
CASE 318G-02
ISSUE U



NOTES:

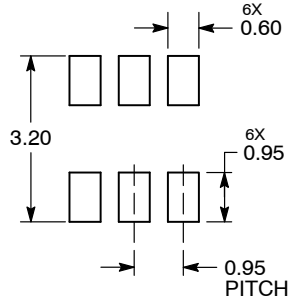
1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M, 1994.
2. CONTROLLING DIMENSION: MILLIMETERS.
3. MAXIMUM LEAD THICKNESS INCLUDES LEAD FINISH. MINIMUM LEAD THICKNESS IS THE MINIMUM THICKNESS OF BASE MATERIAL.
4. DIMENSIONS D AND E1 DO NOT INCLUDE MOLD FLASH, PROTRUSIONS, OR GATE BURRS. MOLD FLASH, PROTRUSIONS, OR GATE BURRS SHALL NOT EXCEED 0.15 PER SIDE. DIMENSIONS D AND E1 ARE DETERMINED AT DATUM H.
5. PIN ONE INDICATOR MUST BE LOCATED IN THE INDICATED ZONE.

DIM	MILLIMETERS		
	MIN	NOM	MAX
A	0.90	1.00	1.10
A1	0.01	0.06	0.10
b	0.25	0.38	0.50
c	0.10	0.18	0.26
D	2.90	3.00	3.10
E	2.50	2.75	3.00
E1	1.30	1.50	1.70
e	0.85	0.95	1.05
L	0.20	0.40	0.60
L2	0.25 BSC		
M	0°	-	10°

STYLE 6:

1. COLLECTOR
2. COLLECTOR
3. BASE
4. EMITTER
5. COLLECTOR
6. COLLECTOR

RECOMMENDED SOLDERING FOOTPRINT*



DIMENSIONS: MILLIMETERS

*For additional information on our Pb-Free strategy and soldering details, please download the ON Semiconductor Soldering and Mounting Techniques Reference Manual, SOLDERRM/D.

ON Semiconductor and are registered trademarks of Semiconductor Components Industries, LLC (SCILLC). SCILLC reserves the right to make changes without further notice to any products herein. SCILLC makes no warranty, representation or guarantee regarding the suitability of its products for any particular purpose, nor does SCILLC assume any liability arising out of the application or use of any product or circuit, and specifically disclaims any and all liability, including without limitation special, consequential or incidental damages. "Typical" parameters which may be provided in SCILLC data sheets and/or specifications can and do vary in different applications and actual performance may vary over time. All operating parameters, including "Typicals" must be validated for each customer application by customer's technical experts. SCILLC does not convey any license under its patent rights nor the rights of others. SCILLC products are not designed, intended, or authorized for use as components in systems intended for surgical implant into the body, or other applications intended to support or sustain life, or for any other application in which the failure of the SCILLC product could create a situation where personal injury or death may occur. Should Buyer purchase or use SCILLC products for any such unintended or unauthorized application, Buyer shall indemnify and hold SCILLC and its officers, employees, subsidiaries, affiliates, and distributors harmless against all claims, costs, damages, and expenses, and reasonable attorney fees arising out of, directly or indirectly, any claim of personal injury or death associated with such unintended or unauthorized use, even if such claim alleges that SCILLC was negligent regarding the design or manufacture of the part. SCILLC is an Equal Opportunity/Affirmative Action Employer. This literature is subject to all applicable copyright laws and is not for resale in any manner.

PUBLICATION ORDERING INFORMATION

LITERATURE FULFILLMENT:
Literature Distribution Center for ON Semiconductor
P.O. Box 5163, Denver, Colorado 80217 USA
Phone: 303-675-2175 or 800-344-3860 Toll Free USA/Canada
Fax: 303-675-2176 or 800-344-3867 Toll Free USA/Canada
Email: orderlit@onsemi.com

N. American Technical Support: 800-282-9855 Toll Free
USA/Canada
Europe, Middle East and Africa Technical Support:
Phone: 421 33 790 2910
Japan Customer Focus Center
Phone: 81-3-5817-1050

ON Semiconductor Website: www.onsemi.com
Order Literature: <http://www.onsemi.com/orderlit>
For additional information, please contact your local Sales Representative



Стандарт Электрон Связь

Мы молодая и активно развивающаяся компания в области поставок электронных компонентов. Мы поставляем электронные компоненты отечественного и импортного производства напрямую от производителей и с крупнейших складов мира.

Благодаря сотрудничеству с мировыми поставщиками мы осуществляем комплексные и плановые поставки широчайшего спектра электронных компонентов.

Собственная эффективная логистика и склад в обеспечивает надежную поставку продукции в точно указанные сроки по всей России.

Мы осуществляем техническую поддержку нашим клиентам и предпродажную проверку качества продукции. На все поставляемые продукты мы предоставляем гарантию .

Осуществляем поставки продукции под контролем ВП МО РФ на предприятия военно-промышленного комплекса России , а также работаем в рамках 275 ФЗ с открытием отдельных счетов в уполномоченном банке. Система менеджмента качества компании соответствует требованиям ГОСТ ISO 9001.

Минимальные сроки поставки, гибкие цены, неограниченный ассортимент и индивидуальный подход к клиентам являются основой для выстраивания долгосрочного и эффективного сотрудничества с предприятиями радиоэлектронной промышленности, предприятиями ВПК и научно-исследовательскими институтами России.

С нами вы становитесь еще успешнее!

Наши контакты:

Телефон: +7 812 627 14 35

Электронная почта: sales@st-electron.ru

Адрес: 198099, Санкт-Петербург,
Промышленная ул, дом № 19, литера Н,
помещение 100-Н Офис 331