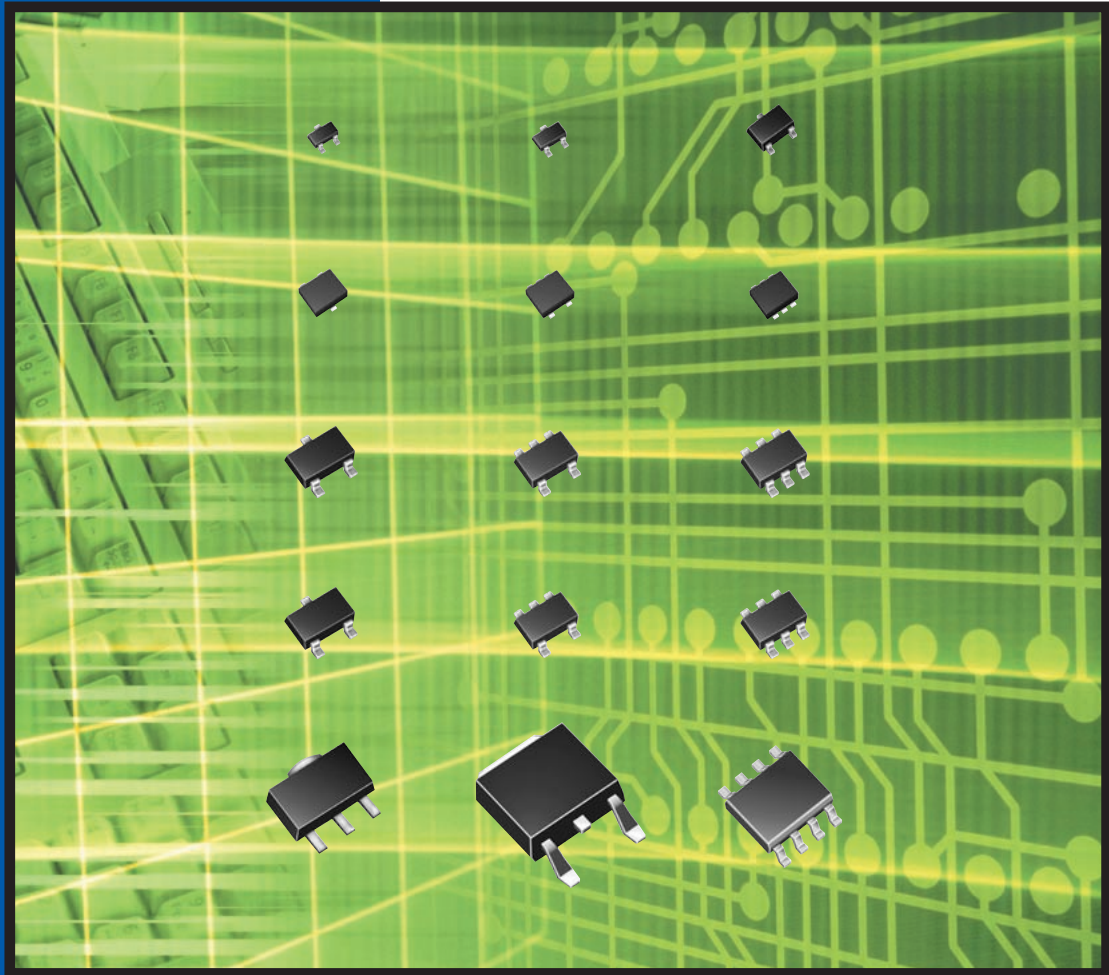


# ROHM

**Tr**-Transistors

# Transistor New Products 2004



## CONTENTS

- ◆ MOS FET Series
- ◆ Low Vce(sat) Super-mini Transistors Series
- ◆ Strong Discharge Voltage/  
High Speed Switching Transistors Series
- ◆ Muting Transistors Series

**ROHM CO., LTD.**

# MOS FET Series

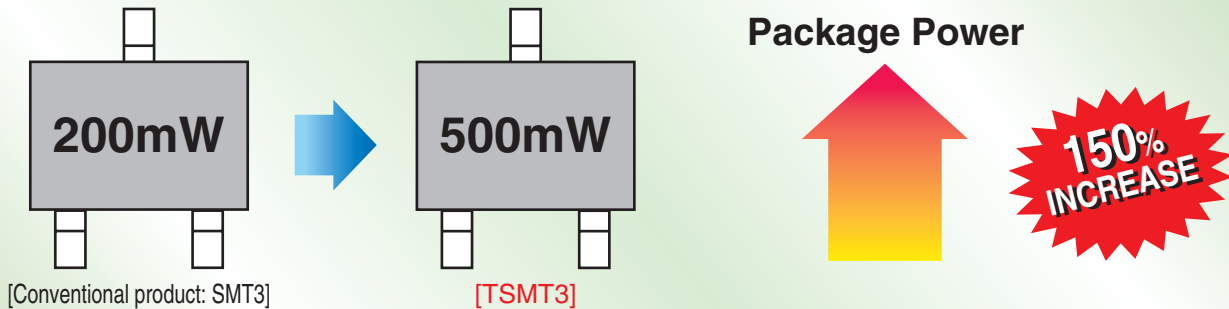
## Power MOS FET Series

### TSMT Series

#### Features

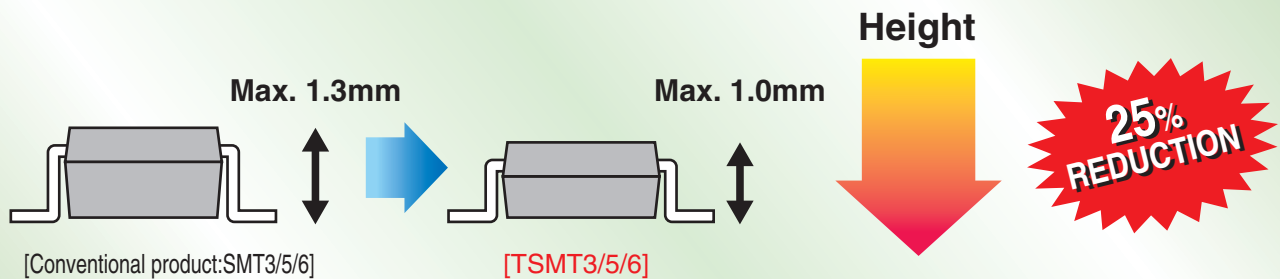
- Low RDs(on)
- High ESD capability ——— Built-in gate protection diode
- High power package ———  $P_c=0.5W$ (TSMT3,5,6 packages)
- Thin package ——— Height 1.0mm max.(TSMT3,5,6 packages)

#### ● Small high power package



**Small package with high power by improving frame material!**


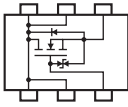

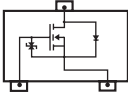

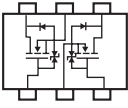
#### ● Thin package




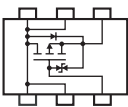

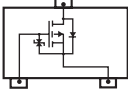

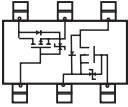
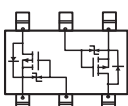
**Space free, easy designing!**

# TSMT Series

## Nch


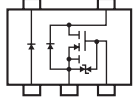
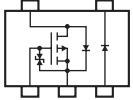
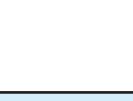
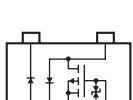
Package	Part No.	Type	V <sub>DSS</sub> (V)	I <sub>D</sub> (A)	R <sub>DS(on)</sub> : Typ.	Driving voltage (V)	Circuit
<b>TSMT6</b> 	<b>RTQ020N03</b>	Single	30	2.0	89mΩ (at4.5V)	2.5	
	<b>RTQ035N03</b>			3.5	38mΩ (at4.5V)		
	<b>RTQ045N03</b>			4.5	30mΩ (at4.5V)		
<b>TSMT3</b> 	<b>RTR025N03</b>			2.5	66mΩ (at4.5V)		
<b>TSMT6</b> 	<b>QS6K1</b>	Dual		1.0	170mΩ (at4.5V)		

## Pch


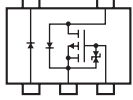
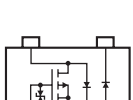

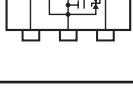
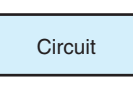

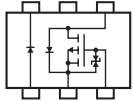
Package	Part No.	Type	V <sub>DSS</sub> (V)	I <sub>D</sub> (A)	R <sub>DS(on)</sub> : Typ.	Driving voltage (V)	Circuit
<b>TSMT6</b> 	<b>RTQ025P02</b>	Single	20	2.5	72mΩ (at4.5V)	2.5	
	<b>RTQ030P02</b>			3.0	60mΩ (at4.5V)		
	<b>RTQ035P02</b>			3.5	50mΩ (at4.5V)		
	<b>RTQ040P02</b>			4.0	35mΩ (at4.5V)		
	<b>RSQ025P03</b>		30	2.5	80mΩ (at10V)	4	
	<b>RSQ030P03</b>			3.0	60mΩ (at10V)		
	<b>RSQ035P03</b>			3.5	45mΩ (at10V)		
<b>TSMT3</b> 	<b>RTR020P02</b>		20	2.0	100mΩ (at4.5V)	2.5	
	<b>RTR025P02</b>			2.5	70mΩ (at4.5V)		
	<b>RTR030P02</b>			3.0	55mΩ (at4.5V)		
	<b>RSR015P03</b>		30	1.5	170mΩ (at10V)	4	
	<b>RSR020P03</b>			2.0	100mΩ (at10V)		
	<b>RSR025P03</b>			2.5	70mΩ (at10V)		
<b>TSMT6</b> 	<b>QS6J1</b>	Dual	20	1.5	155mΩ (at4.5V)	2.5	
	<b>QS6J3</b>				155mΩ (at4.5V)		

# MOS FET Series


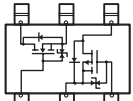
## Nch+SBD

Package	Part No.	Type	V <sub>DSS</sub> (V)	I <sub>D</sub> (A)	R <sub>DS(on)</sub> : Typ.	Driving voltage (V)	Circuit	
<b>TSMT5</b> 	<b>QS5U12</b>	Nch	30	2.0	71mΩ (at4.5V)	2.5		
		SBD	20	1.0	V <sub>F</sub> =0.45V (at1.0A)			
	<b>QS5U13</b>	Nch	30	2.0	71mΩ (at4.5V)			
		SBD	20	0.5	V <sub>F</sub> =0.36V (at0.1A)			
	<b>QS5U16</b>	Nch	30	2.0	71mΩ (at4.5V)			
		SBD	20	0.5	V <sub>F</sub> =0.36V (at0.1A)			
<b>QS5U17</b>	Nch	30	2.0	71mΩ (at4.5V)				
	SBD	20	1.0	V <sub>F</sub> =0.45V (at1A)				

## Pch+SBD

Package	Part No.	Type	V <sub>DSS</sub> (V)	I <sub>D</sub> (A)	R <sub>DS(on)</sub> : Typ.	Driving voltage (V)	Circuit	
<b>TSMT5</b> 	<b>QS5U21</b>	Pch	20	1.5	160mΩ (at4.5V)	2.5		
		SBD	20	1.0	V <sub>F</sub> =0.45V (at1.0A)			
	<b>QS5U23</b>	Pch	20	1.5	160mΩ (at4.5V)			
		SBD	20	0.5	V <sub>F</sub> =0.36V (at0.1A)			
	<b>QS5U26</b>	Pch	20	1.5	160mΩ (at4.5V)			
		SBD	20	0.5	V <sub>F</sub> =0.36V (at0.1A)			
	<b>QS5U27</b>	Pch	20	1.5	160mΩ (at4.5V)			
		SBD	20	1.0	V <sub>F</sub> =0.45V (at1.0A)			
<b>QS5U28</b>	Pch	20	2.0	90mΩ (at.4.5V)				
	SBD	20	1.0	V <sub>F</sub> =0.45V (at1.0A)				
<b>TSMT6</b> 	<b>QS6U22</b>	Pch	20	1.5	155mΩ (at4.5V)	4		
		SBD	20	0.7	V <sub>F</sub> =0.49V (at0.7A)			
	<b>QS6U24</b>	Pch	30	1.0	300mΩ (at10V)			
		SBD	20	0.7	V <sub>F</sub> =0.49V (at0.7A)			

## Nch+Pch

Package	Part No.	Type	V <sub>DSS</sub> (V)	I <sub>D</sub> (A)	R <sub>DS(on)</sub> : Typ.	Driving voltage (V)	Circuit
<b>TSMT6</b> 	<b>QS6M3</b>	Nch	30	1.5	170mΩ (at4.5V)	2.5	
		Pch	20	1.5	155mΩ (at4.5V)		
	<b>QS6M4</b>	Nch	30	1.5	170mΩ (at4.5V)		
		Pch	20	1.5	155mΩ (at4.5V)		

# MOS FET Series

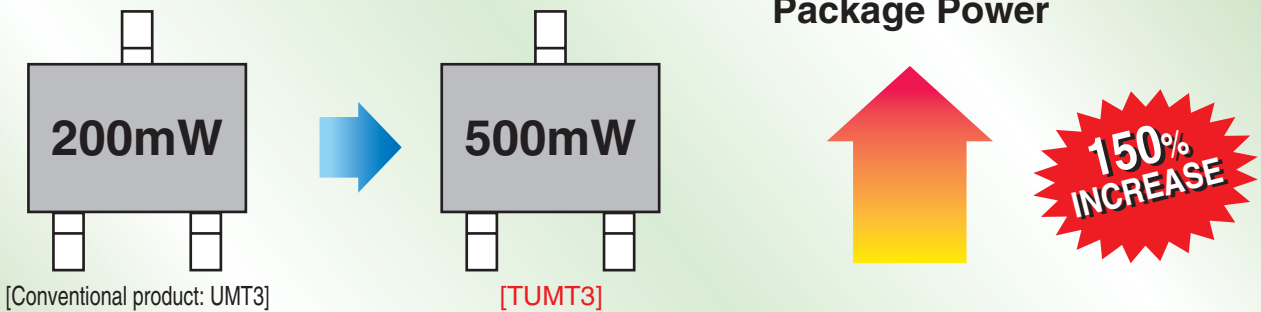
## Power MOS FET Series

### TUMT Series

#### Features

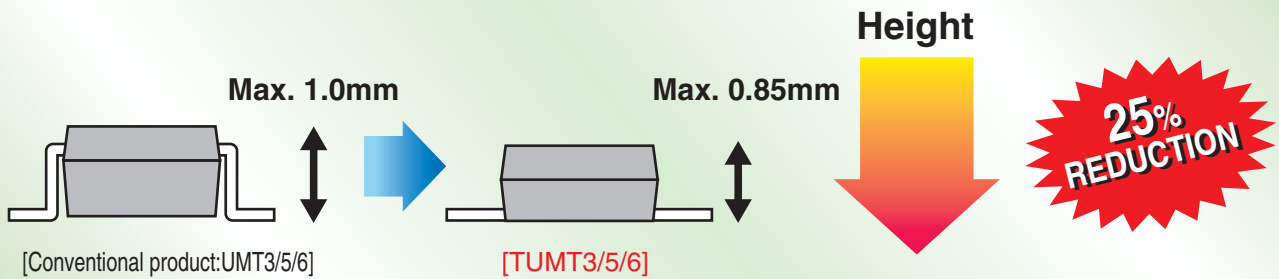
- Low RDs(on)
- High ESD capability \_\_\_\_\_ Built-in gate protection diode
- High power package \_\_\_\_\_  $P_c=0.5W$ (TSMT3,5,6 packages)
- Thin package \_\_\_\_\_ Height 1.0mm max.(TUMT3,5,6 packages)

#### ● Small high power package



**Small package with high power by improving frame material!**

#### ● Thin package



**Space free, easy designing!**

# Power MOS FET Series

## Nch

Package	Part No.	Type	V <sub>DSS</sub> (V)	I <sub>D</sub> (A)	R <sub>bs(on)</sub> : Typ.	Driving voltage (V)	Circuit
TUMT6	RTL035N03	Single	30	3.5	35mΩ (at4.5V)	2.5	
TUMT3	RTF015N03			1.5	170mΩ (at4.5V)		
	RTF025N03			2.5	48mΩ (at4.5V)		
	RSF014N03	1.4		170mΩ (at10V)	4		
TUMT6	US6K1	Dual		1.5	170mΩ (at4.5V)	2.5	
	US6K2			1.4	170mΩ (at10V)	4	
TUMT5	US5K3		1.5	170mΩ (at4.5V)	2.5		

## Pch

Package	Part No.	Type	V <sub>DSS</sub> (V)	I <sub>D</sub> (A)	R <sub>bs(on)</sub> : Typ.	Driving voltage (V)	Circuit
TUMT6	RTL020P02	Single	20	2.0	100mΩ (at4.5V)	2.5	
	RTL030P02			3.0	50mΩ (at4.5V)		
TUMT3	RTF010P02			1.0	280mΩ (at4.5V)		
	RTF011P02			1.1	280mΩ (at4.5V)		
	RTF015P02			1.5	100mΩ (at4.5V)		
	RTF020P02			2.0	60mΩ (at4.5V)		
	RSF010P03	30	1.0	260mΩ (at10V)	4		
TUMT6	US6J2	Dual	20	1.0	280mΩ (at4.5V)	2.5	


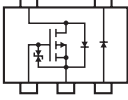
## Nch+SBD

Package	Part No.	Type	V <sub>DSS</sub> (V)	I <sub>D</sub> (A)	R <sub>bs(on)</sub> : Typ.	Driving voltage (V)	Circuit
TUMT5	US5U1	Nch	30	1.5	170mΩ (at4.5V)	2.5	
		SBD	20	0.5	V <sub>F</sub> =0.36V (at0.1A)		
	US5U2	Nch	30	1.4	170mΩ (at10V)	4	
		SBD	20	0.5	V <sub>F</sub> =0.36V (at0.1A)		
	US5U3	Nch	30	1.5	170mΩ (at4.5V)	2.5	
		SBD	20	0.7	V <sub>F</sub> =4.9V (at0.7A)		


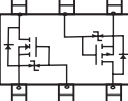
# MOS FET Series

## Power MOS FET Series

### Pch+SBD

Package	Part No.	Type	V <sub>DSS</sub> (V)	I <sub>D</sub> (A)	R <sub>Ds(on)</sub> : Typ.	Driving voltage (V)	Circuit
<b>TUMT5</b> 	<b>US5U29</b>	Pch	20	1.0	280mΩ (at4.5V)	2.5	
		SBD	20	0.7	V <sub>F</sub> =0.49V (at0.7A)		
	<b>US5U30</b>	Pch	20	1.0	280mΩ (at4.5V)		
		SBD	20	0.5	V <sub>F</sub> =0.36V (at0.1A)		

### Nch+Pch


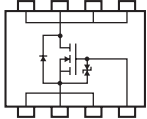
Package	Part No.	Type	V <sub>DSS</sub> (V)	I <sub>D</sub> (A)	R <sub>Ds(on)</sub> : Typ.	Driving voltage (V)	Circuit
<b>TUMT6</b> 	<b>US6M1</b>	Nch	30	1.4	170mΩ (at10V)	4	
		Pch	20	1.0	280mΩ (at4.5V)	2.5	
	<b>US6M2</b>	Nch	20	1.5	170mΩ (at4.5V)		
		Pch	20	1.0	280mΩ (at4.5V)		

# MOSFET Series


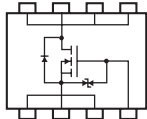
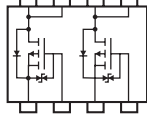
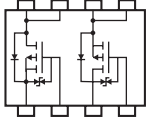
## Power MOS FET Series

### SOP8 Series

#### Nch

Package	Part No.	Type	V <sub>DSS</sub> (V)	I <sub>D</sub> (A)	R <sub>DS(on)</sub> : Typ.[mΩ] V <sub>GS</sub> = 10V	Driving voltage (V)	Circuit
	RSS065N03	Single	30	6.5	19	4	
	RSS090N03			9	11		
	RSS100N03			10	9.5		
	RSS105N03			10.5	8.5		
	RSS110N03			11	7.6		
	RSS120N03			12	7.1		
	RSS125N03			12.5	6.5		
	RSS130N03			13	5.9		
	RSS140N03			14	4.9		
	SP8K5			Dual	30		
	SP8K1	5	36				
	SP8K2	6	21				
	SP8K3	7	17				
	SP8K4	9	12				


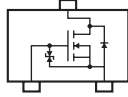





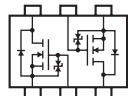


#### Pch

Package	Part No.	Type	V <sub>DSS</sub> (V)	I <sub>D</sub> (A)	R <sub>DS(on)</sub> : Typ.[mΩ]	Driving voltage (V)	Circuit					
	RSS040P03	Single	30	4	50	4						
	RSS050P03			5	30							
	RSS075P03			7.5	15							
	RSS090P03			9	10							
	SP8J4	Dual		2	170			V <sub>GS</sub> =10V	4			
	SP8J3			3.5	65							
	SP8J2			4.5	40							
	SP8J1			5	30							
	SP8J5			7	20							
	RTS090P02	Single		20	9						10	V <sub>GS</sub> =4.5V
	RTS075P02		7.5		16							
	RTS070P02		7		18							
	RTS050P02		5		26							
	RTS040P02		4		45							
	SP8J6	Dual	6.5		22							
	SP8J7		6		25							
	SP8J8		4.5		42							


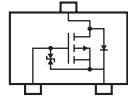




## ●2.5V Driving Series

### Nch


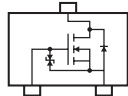




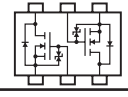
Package	Part No.	Type	V <sub>DSS</sub> (V)	I <sub>D</sub> (A)	R <sub>DS(on)</sub> :Typ.[ $\Omega$ ] V <sub>GS</sub> = 4V	Circuit
 VMT3	2SK3541	Single	30	0.1	5	
 EMT3	2SK3019					
 UMT3	2SK3018					
	RJU003N03			0.3	0.9	
 SMT3	RJK005N03			0.5	0.43	
 MPT3	2SK3065			60	2	
	RJP020N06	2.5	0.16			
 EMT6	EM6K1	Dual	30	0.1	5	
 UMT6	UM6K1N					
 SMT6	SM6K4			0.3	0.9	

### Pch


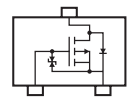


Package	Part No.	Type	V <sub>DSS</sub> (V)	I <sub>D</sub> (A)	R <sub>DS(on)</sub> :Typ.[ $\Omega$ ] V <sub>GS</sub> = 4V	Circuit
 VMT3	RTM002P02	Single	20	0.2	1.1	
 EMT3	RTE002P02					
 UMT3	RTU002P02					

## ●4V Driving Series

### Nch

Package	Part No.	Type	V <sub>DSS</sub> (V)	I <sub>D</sub> (A)	R <sub>DS(on)</sub> :Typ.[ $\Omega$ ] V <sub>GS</sub> = 10V	Circuit
 UMT3	RHU003N03	Single	30	0.3	0.75	
	RHU002N06			0.2	1.6	
 SST3	RK7002		60	0.115	2.2	
	RK7002A			0.3	0.7	
 SMT3	RHK005N03		30	0.5	0.34	
	RHK002N06		60	0.2	1.7	
	RHK003N06	0.3		0.7		
 MPT3	RHP030N03	30	0.3	0.09		
	RHP020N06	60	0.2	0.15		
 SMT6	SM6K2	Dual	60	0.2	1.6	
					0.9	

### Pch

Package	Part No.	Type	V <sub>DSS</sub> (V)	I <sub>D</sub> (A)	R <sub>DS(on)</sub> :Typ.[ $\Omega$ ] V <sub>GS</sub> = 10V	Circuit
 VMT3	RSM002P03	Single	30	0.2	0.9	
 EMT3	RSE002P03					
 UMT3	RSU002P03					

# Low $V_{CE(sat)}$ Transistor Series

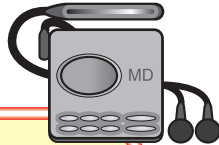
ROHM development has achieved a Low  $V_{CE(sat)}$  Tr series in various small surface mount packages. These Low  $V_{CE(sat)}$  Transistors are suitable for digital equipment.

## Features

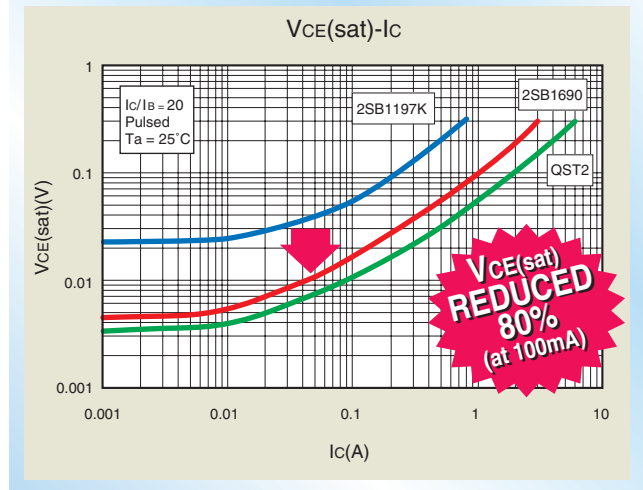
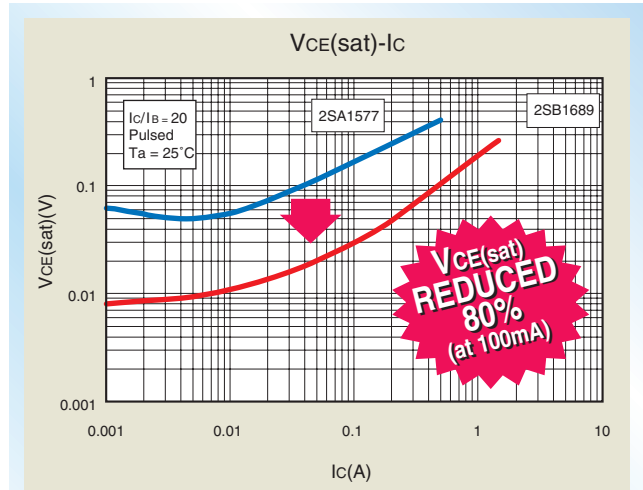
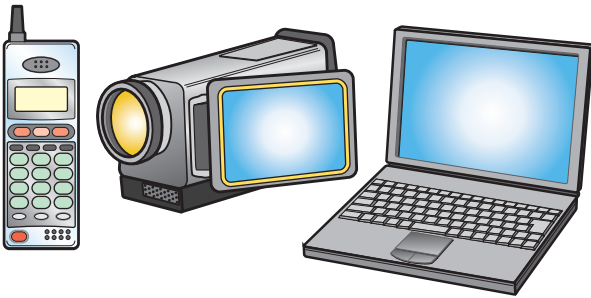
- Low  $V_{CE(sat)}$  Transistors in small surface mount packages!
- Low Energy Consumption.
- High Collector Current.

## Applications

- Switching circuits
- DC/DC converters



For Portable Equipment:  
(i.e. Cellular phone, MD, CD-ROM,  
DVD-ROM, Notebook PC, etc.)







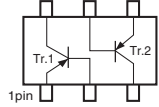
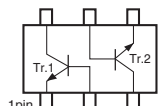
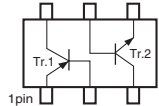
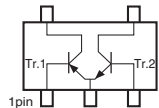
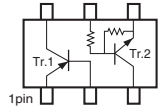
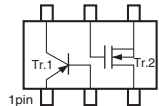
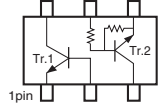
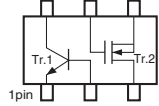
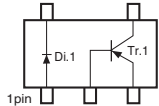
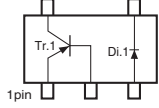
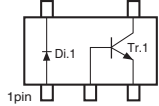
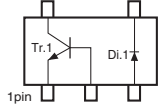
## ● Single Type

**NEW** **NEW**

VMT3		EMT3		UMT3		TUMT3		TUMT6		TSMT3		TSMT6		$V_{CE0}$ (V)	$I_c$ (A)
PNP	NPN	PNP	NPN	PNP	NPN	PNP	NPN	PNP	NPN	PNP	NPN	PNP	NPN		
2SA2030	2SC5663	2SA2018	2SC5585											12	0.5
				2SB1689	2SD2652	25B1732	25D2702			2SB1709	2SD2674			12	1.5
						25B1730	25D2700	UST6	USX5	2SB1690	2SD2653	QST6	QSX5	12	2
								UST4	USX3	2SB1705	2SD2670	QST4	QSX3	12	3
										2SB1707	2SD2672			12	4
												QST2	QSX1	12	6
				2SB1694	2SD2656	25B1733	25D2703			2SB1710	2SD2675			30	1
						25B1731	25D2701	UST7	USX6	2SB1695	2SD2657	QST7	QSX6	30	1.5
								UST5	USX4	2SB1706	2SD2671	QST5	QSX4	30	2
										2SB1708	2SD2673			30	3
												QST3	QSX2	30	5

**NEW**

● **Dual Type**

Type	Circuit	EMT6	UMT5/UMT6	TUMT5/TUMT6	TSMT5/TSMT6	Combination	Voltage (V)	Current (A)
								
PNP x2		EMT18	UMT18N			2SA2018 2SA2018	12	0.5
				UST8	QST8	2SB1709 2SB1709	12	1.5
				UST9	QST9	2SB1710 2SB1710	30	1
NPN x2		EMX18	UMX18N			2SC5585 2SC5585	12	0.5
				USX7	QSX7	2SD2674 2SD2674	12	1.5
				USX8	QSX8	2SD2675 2SD2675	30	1
PNP + NPN		EMZ7	UMZ7N			2SA2018 2SC5585	12	0.5
		EMZ8	UMZ8N			2SA2018 2SC4617	12 50	0.5 0.15
					QSZ1	2SB1690 2SD2653	12	2
					QSZ2	2SB1695 2SD2657	30	1.5
PNP + DTr		EMF4	UMF4N			2SA2018 DTC123E	12 50	0.5 0.1
		EMF5	UMF5N			2SA2018 DTC144E	12 50	0.5 0.1
		EMF21	UMF21N			2SA2018 DTC114E	12 50	0.5 0.1
PNP + MOS		EMF6	UMF6N			2SA2018 2SK3019	12 30	0.5 0.1
NPN + DTr		EMF7	UMF7N			2SC5585 DTC123E	12 50	0.5 0.1
		EMF8	UMF8N			2SC5585 DTC144E	12 50	0.5 0.1
		EMF22	UMF22N			2SC5585 DTC114E	12 50	0.5 0.1
NPN + MOS		EMF9	UMF9N			2SC5585 2SK3019	12 30	0.5 0.1
PNP + SBD			UML4N			2SA2018 RB521S-30	12 30	0.5 0.2
					USL9	QSL9	2SB1707 RB461F	12 20
					USL11	QSL11	2SB1708 RB461F	30 20
						QSL13	2SB1690 RB400D	12 40
NPN + SBD			UML6N			2SC5585 RB521S-30	12 30	0.5 0.2
					USL10	QSL10	2SD2672 RB461F	12 20
					USL12	QSL12	2SD2673 RB461F	30 20

# Strong Discharge Voltage/ High Speed Switching Transistors Series

## Outline

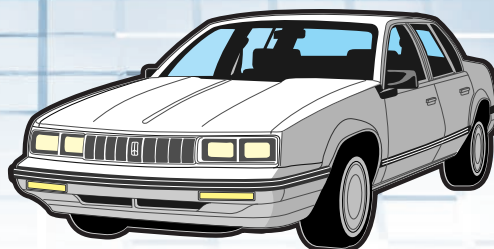
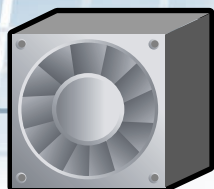
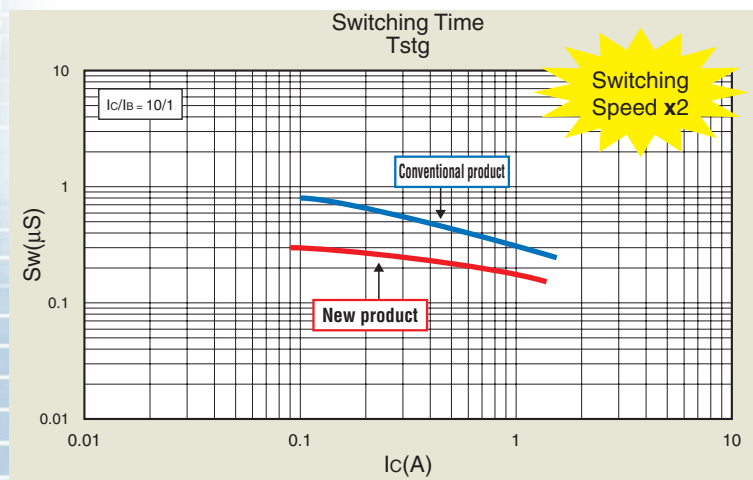
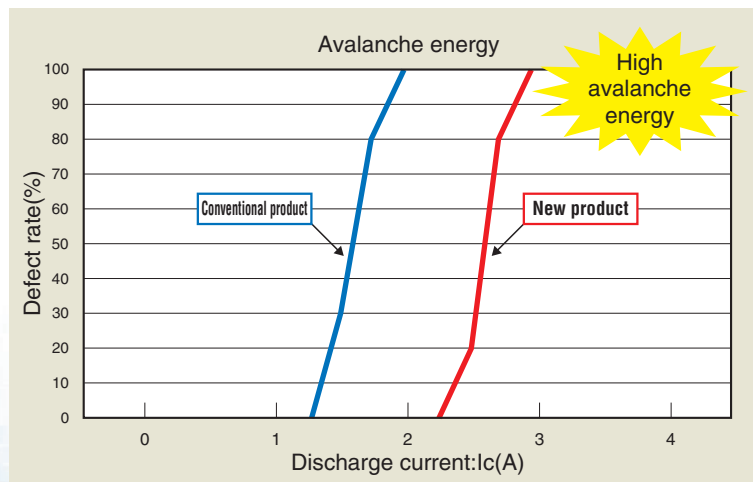
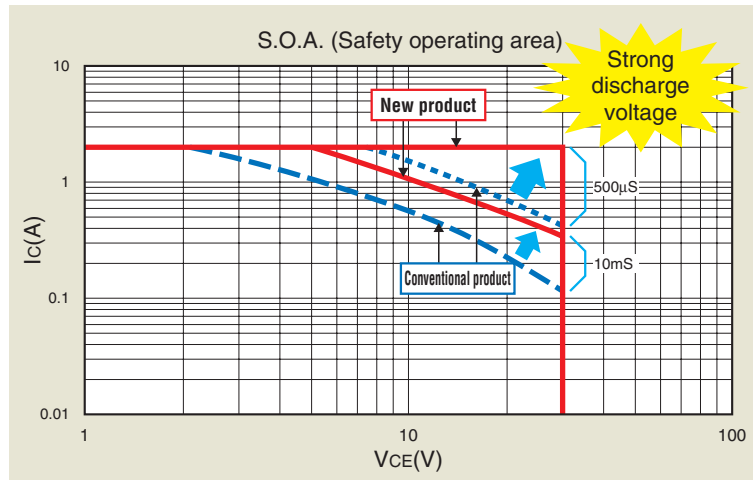
By using new technology, our parts are built stronger to withstand ESD. High speed switching transistors are available in small surface mount pkgs!

## Features

- Built to withstand ESD (wide S.O.A) 5 Times better
- High speed switching 2 Times faster
- High avalanche energy 4 Times better


















## Applications

- DC/DC converter
- Motor drive
- Strobe/pulse mode





## Series Line Up

### ● Surface mount devices

Current (A)	Package	Voltage [V]		
		30	60	90
0.5	UMT3 	2SA2047/2SC5729	2SA2088/2SC5876	
	TUMT3 		<b>NEW</b> 2SA2137/2SC5887	<b>NEW</b> 2SA2139/2SC5989
	SMT3 			2SA2054K/2SC5734K
	TSMT3 		2SA2090/2SC5868	2SA2054/2SC5734
1	TUMT3 	<b>NEW</b> 2SA2136/2SC5986	<b>NEW</b> 2SA2138/2SC5988	
	TUMT6 			<b>NEW</b> 2SA2133/2SC5983
	TSMT3 	2SA2048/2SC5730	2SA2092/2SC5865	2SC5734/2SC5917
	MPT3 			2SA2051/2SC5733
2	TUMT6 	<b>NEW</b> 2SA2131/2SC5981	<b>NEW</b> 2SA2132/2SC5982	
	TSMT3 	2SA2113/2SC5916	2SA2094/2SC5866	
	MPT3 	2SA2049/2SC5731		2SA2109/2SC5918
	CPT3 			2SA2108/2SC5919
3	TSMT3 		2SA2095/2SC5867	2SA2135/2SC5985
	MPT3 		2SA2071/2SC5824	
	CPT3 		2SA2072/2SC5825	
5	TSMT3 	<b>NEW</b> 2SA2134/2SC5984		
	CPT3 	2SA2050/2SC5732	2SA2096/2SC5881	


### ● Through-hole devices



Current (A)	Package	Voltage [V]		
		30	60	90
0.5	SPT 	2SA2085S/2SC5873S	2SA2089S/2SC5877S	2SA2115S/2SC5920S
1		2SA2086S/2SC5874S	2SA2091S/2SC5879S	2SA2106S/2SC5921S
2	ATV 			2SA2110/2SC5922
3		2SA2087/2SC5875	2SA2093/2SC5880	2SA2107/2SC5923
			2SA2073/2SC5826	


# Strong Discharge Voltage/ High Speed Switching Transistors Series


## Characteristics


● Surface mount devices


Package	Part No.		BV <sub>CEO</sub> [V]	I <sub>C</sub> [A]	I <sub>CP</sub> [A]	h <sub>FE</sub>	RANK	SW time [ns]		
	PNP	NPN						ton	tstg	tf
<b>UMT3</b> Pc=0.2W 	<b>2SA2047</b>	<b>2SC5729</b>	30	0.5	1	120~390	Q,R	40/40	120/100	50/40
	<b>2SA2088</b>	<b>2SC5876</b>	60					70/35	130/100	80/60

Package	Part No.		BV <sub>CEO</sub> [V]	I <sub>C</sub> [A]	I <sub>CP</sub> [A]	h <sub>FE</sub>	RANK	SW time [ns]				
	PNP	NPN						ton	tstg	tf		
<b>TUMT3</b> Pc=0.5W 	<b>2SA2136</b>	<b>2SC5986</b>	30	1	2	120~390	Q,R	30/30	100/120	20/25		
	<b>2SA2137</b>	<b>2SC5987</b>	60	0.5	1			120~270 /120~390	Q/Q,R	35/70	100/130	20/20
	<b>2SA2138</b>	<b>2SC5988</b>		1	2					30/50	100/130	30/50
	<b>2SA2139</b>	<b>2SC5889</b>	90	0.5	1					35/50	160/200	60/80
<b>TUMT6</b> Pc=0.5W 	<b>2SA2131</b>	<b>2SC5981</b>	30	2	4	120~270 /120~390	Q/Q,R			25/25	100/100	20/20
	<b>2SA2132</b>	<b>2SC5982</b>	60	2	4			25/30	100/120	30/35		
	<b>2SA2133</b>	<b>2SC5983</b>	90	1	2			30/50	150/150	50/50		


Package	Part No.		BV <sub>CEO</sub> [V]	I <sub>C</sub> [A]	I <sub>CP</sub> [A]	h <sub>FE</sub>	RANK	SW time [ns]		
	PNP	NPN						ton	tstg	tf
<b>SMT3</b> Pc=0.2W 	<b>2SA2048K</b>	<b>2SC5730K</b>	30	1	2	120~390	Q,R	40/30	150/100	50/20
	<b>2SA2054K</b>	<b>2SC5734K</b>	90	0.5	1			120~270 /120~390	Q/Q,R	50/35


Package	Part No.		BV <sub>CEO</sub> [V]	I <sub>C</sub> [A]	I <sub>CP</sub> [A]	h <sub>FE</sub>	RANK	SW time [ns]		
	PNP	NPN						ton	tstg	tf
<b>TSMT3</b> Pc=0.5W 	<b>2SA2048</b>	<b>2SC5730</b>	30	1	2	120~390	Q,R	30/30	120/100	35/20
	<b>2SA2113</b>	<b>2SC5916</b>		2	4			25/25	100/100	20/20
	<b>2SA2134</b>	<b>2SC5989</b>		5	10			25/60	100/130	25/20
	<b>2SA2090</b>	<b>2SC5868</b>	60	0.5	1	120~270 /120~390	Q/Q,R	70/35	130/100	80/60
	<b>2SA2092</b>	<b>2SC5865</b>		1	2			50/30	130/100	50/30
	<b>2SA2094</b>	<b>2SC5866</b>		2	4			50/25	120/100	35/30
	<b>2SA2095</b>	<b>2SC5867</b>	90	3	6	50/20	150/100	60/20		
	<b>2SA2054</b>	<b>2SC5734</b>		0.5	1	50/35	200/160	80/60		
	<b>2SA2114</b>	<b>2SC5917</b>		1	2	50/30	150/150	50/50		

Package	Part No.		BV <sub>CEO</sub> [V]	I <sub>C</sub> [A]	I <sub>CP</sub> [A]	h <sub>FE</sub>	RANK	SW time [ns]				
	PNP	NPN						ton	tstg	tf		
<b>MPT3</b> Pc=0.5W 	<b>2SA2049</b>	<b>2SC5731</b>	30	2	4	120~390	Q,R	25/25	100/100	20/20		
	<b>2SA2071</b>	<b>2SC5824</b>	60	3	6			120~270 /120~390	Q/Q,R	50/20	150/150	30/20
	<b>2SA2051</b>	<b>2SC5733</b>	90	1	2					50/30	150/150	25/25
	<b>2SA2109</b>	<b>2SC5918</b>		2	4					50/25	200/280	70/50

Package	Part No.		BV <sub>CEO</sub> [V]	I <sub>C</sub> [A]	I <sub>CP</sub> [A]	h <sub>FE</sub>	RANK	SW time [ns]				
	PNP	NPN						ton	tstg	tf		
<b>CPT3</b> Pc=1W 	<b>2SA2050</b>	<b>2SC5732</b>	30	5	10	120~390	Q,R	60/25	130/100	25/20		
	<b>2SA2072</b>	<b>2SC5825</b>	60	3	6			120~270 /120~390	Q/Q,R	50/20	150/150	30/20
	<b>2SA2096</b>	<b>2SC5881</b>		5	10					70/25	150/130	25/25
	<b>2SA2108</b>	<b>2SC5919</b>	90	2	4					70/25	200/280	70/50

● Through-hole devices

Package	Part No.		BV <sub>CEO</sub> [V]	I <sub>C</sub> [A]	I <sub>CP</sub> [A]	h <sub>FE</sub>	RANK	SW time [ns]		
	PNP	NPN						ton	tstg	tf
<b>SPT</b> P <sub>C</sub> =0.3W 	<b>2SA2085S</b>	<b>2SC5873S</b>	30	0.5	1	120~390	Q,R	40/40	120/100	50/40
	<b>2SA2086S</b>	<b>2SC5874S</b>		1	2			30/30	120/100	35/20
	<b>2SA2089S</b>	<b>2SC5877S</b>	60	0.5	1	120~270 /120~390	Q/Q,R	70/35	130/100	80/60
	<b>2SA2091S</b>	<b>2SC5879S</b>		1	2			50/30	130/100	50/30
	<b>2SA2115S</b>	<b>2SC5920S</b>	90	0.5	1			50/35	200/100	80/60
	<b>2SA2106S</b>	<b>2SC5921S</b>		1	2			50/30	150/150	50/50

Package	Part No.		BV <sub>CEO</sub> [V]	I <sub>C</sub> [A]	I <sub>CP</sub> [A]	h <sub>FE</sub>	RANK	SW time [ns]		
	PNP	NPN						ton	tstg	tf
<b>ATV</b> P <sub>C</sub> =1W 	<b>2SA2087</b>	<b>2SC5875</b>	30	2	4	120~390	Q,R	25/25	100/100	20/20
	<b>2SA2093</b>	<b>2SC5880</b>						60	50/25	120/100
	<b>2SA2073</b>	<b>2SC5826</b>	3	6	120~270 /120~390	Q/Q,R	50/20		150/150	30/20
	<b>2SA2110</b>	<b>2SC5922</b>	90	1			2		50/30	150/150
	<b>2SA2107</b>	<b>2SC5923</b>		2	4	50/25	300/280	80/50		

# For Muting Transistors

High- $\beta$  & High-BVEBO

## Features

- Low OutPut On-resistance
- High DC Current gain
- High-Emitter-to-base breakdown-voltage
- Single & Dual Vcrsion Line up

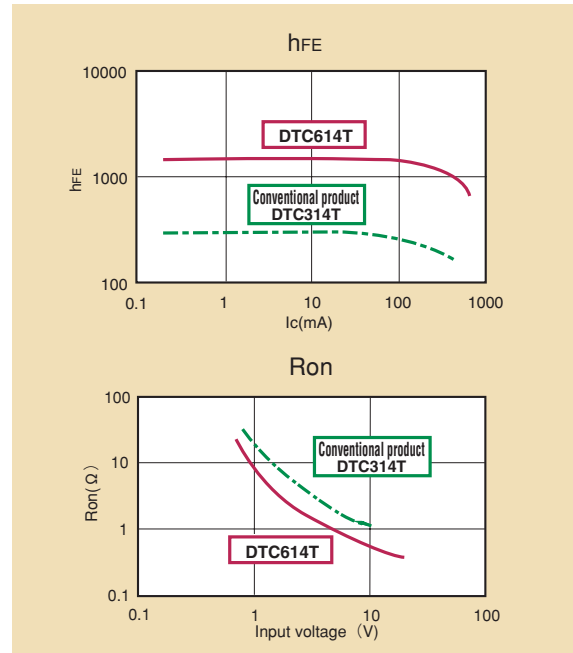
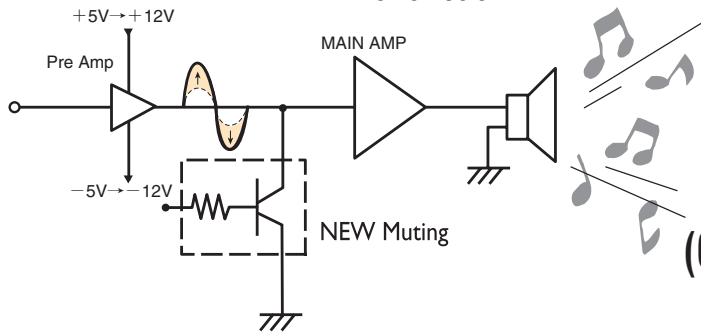
## Applications



Car Stereo



Home Audio



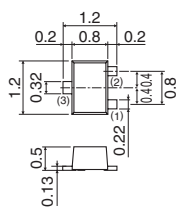
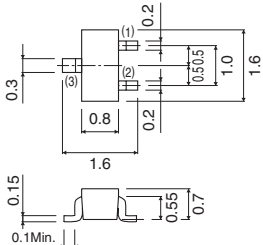
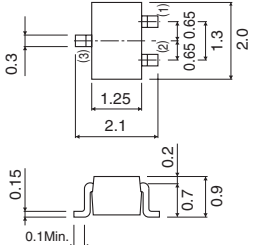
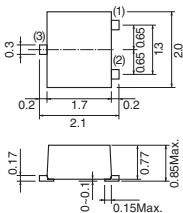
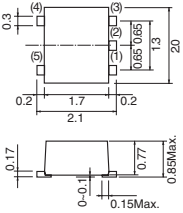
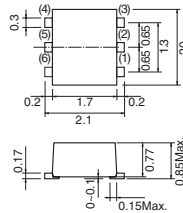
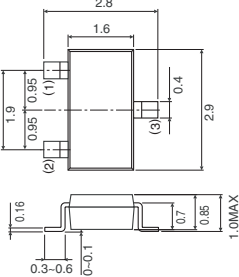
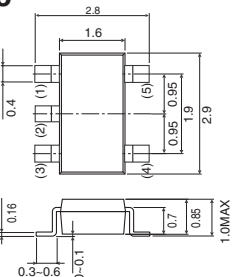
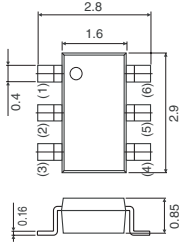
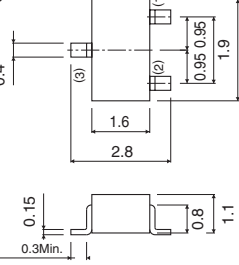
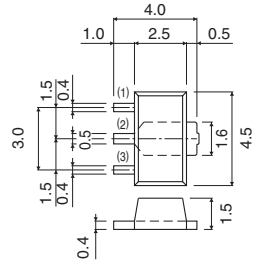
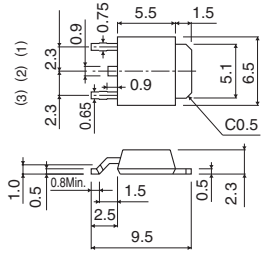
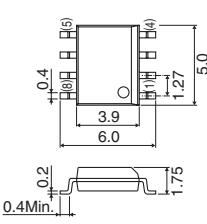
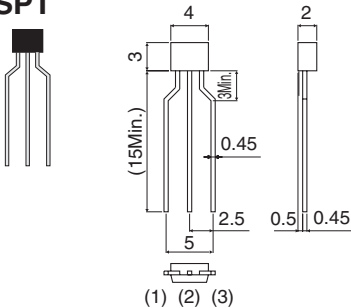
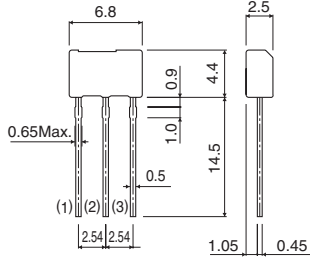
**12V**  
(DTC614T)

**5V BV<sub>EBO</sub>**  
(Conventional product)

DTC6 Series	Built-in resistance	Internal circuit	Complex	Internal circuit	Ic(mA)	BV <sub>CEO</sub> (V)	BV <sub>EBO</sub> (V)	Ron(Ω)
DTC614TU	10kΩ		IMH21		600	20	12	0.9
DTC623TU	2.2kΩ		IMH24					0.4
DTC643TU	4.7kΩ		IMH23					0.55
DTC663TU	6.8kΩ		IMH22					0.9



# Dimensions

<p><b>VMT3</b></p>  <p>Top view dimensions: 1.2, 0.2, 0.8, 0.2, 0.92, 0.4, 0.4, 0.8. Side view dimensions: 0.13, 0.5, 0.22, 0.8.</p>	<p><b>EMT3</b></p>  <p>Top view dimensions: 0.3, 0.8, 0.2, 0.2, 1.0, 1.6. Side view dimensions: 0.15, 0.55, 0.7, 0.1Min.</p>	<p><b>UMT3</b></p>  <p>Top view dimensions: 0.3, 1.25, 2.1, 0.65, 0.65, 1.3, 2.0. Side view dimensions: 0.15, 0.2, 0.7, 0.9, 0.1Min.</p>
<p><b>TUMT3</b></p>  <p>Top view dimensions: 0.3, 0.2, 1.7, 0.2, 2.1, 2.0, 0.65, 0.65, 1.3. Side view dimensions: 0.17, 0.77, 0.85Max, 0-0.1, 0.15Max.</p>	<p><b>TUMT5</b></p>  <p>Top view dimensions: 0.3, 0.2, 1.7, 0.2, 2.1, 2.0, 0.65, 0.65, 1.3. Side view dimensions: 0.17, 0.77, 0.85Max, 0-0.1, 0.15Max.</p>	<p><b>TUMT6</b></p>  <p>Top view dimensions: 0.3, 0.2, 1.7, 0.2, 2.1, 2.0, 0.65, 0.65, 1.3. Side view dimensions: 0.17, 0.77, 0.85Max, 0-0.1, 0.15Max.</p>
<p><b>TSMT3</b></p>  <p>Top view dimensions: 1.9, 0.95, 0.95, 2.8, 1.6, 0.4, 2.9, 2.9. Side view dimensions: 0.16, 0.3-0.6, 0-0.1, 0.7, 0.85, 1.0MAX.</p>	<p><b>TSMT5</b></p>  <p>Top view dimensions: 0.4, 0.4, 0.95, 0.95, 2.8, 1.6, 1.9, 2.9, 2.9. Side view dimensions: 0.16, 0.3-0.6, 0-0.1, 0.7, 0.85, 1.0MAX.</p>	<p><b>TSMT6</b></p>  <p>Top view dimensions: 0.4, 0.4, 0.95, 0.95, 2.8, 1.6, 1.9, 2.9, 2.9. Side view dimensions: 0.16, 0.3-0.6, 0-0.1, 0.7, 0.85, 1.0MAX.</p>
<p><b>SMT3</b></p>  <p>Top view dimensions: 0.4, 1.6, 2.8, 1.9, 2.9, 0.95, 0.95. Side view dimensions: 0.15, 0.3Min, 0.8, 1.1.</p>	<p><b>MPT3</b></p>  <p>Top view dimensions: 1.0, 4.0, 2.5, 0.5, 3.0, 1.5, 0.4, 0.5, 1.6, 4.5, 1.5. Side view dimensions: 0.4, 1.5.</p>	<p><b>CPT3</b></p>  <p>Top view dimensions: 0.9, 5.5, 1.5, 2.3, 2.3, 0.9, 0.75, 0.65, 5.1, 6.5, CO.5. Side view dimensions: 1.0, 0.5, 0.8Min, 1.5, 0.5, 2.3, 9.5, 2.5.</p>
<p><b>SOP8</b></p>  <p>Top view dimensions: 0.4, 3.9, 6.0, 5.0, 1.27, 1.75. Side view dimensions: 0.2, 0.4Min, 1.75.</p>	<p><b>SPT</b></p>  <p>Top view dimensions: 4, 3, 2, 15Min, 0.45, 2.5, 0.5, 0.45. Side view dimensions: 0.5, 0.45.</p>	<p><b>ATV</b></p>  <p>Top view dimensions: 6.8, 0.65Max, 0.9, 4.4, 14.5, 2.5, 1.0, 0.5, 1.05, 0.45. Side view dimensions: 2.54, 2.54, 1.05, 0.45.</p>

(UNIT:mm)

- The contents described herein are correct as of Sep, 2003.
- ROHM assumes no responsibility for the use of any circuits described herein, conveys no license under any patent or other right, and makes no representations that the circuits are free from patent infringement. Specifications subject to change without notice for the purpose of improvement.

The products listed in this catalog are designed to be used with ordinary electronic equipment or devices (such as audio visual equipment, office-automation equipment, communications devices, electrical appliances and electronic toys). Should you intend to use these products with equipment or devices which require an extremely high level of reliability and the malfunction of which would directly endanger human life (such as medical instruments, transportation equipment, aerospace machinery, nuclear-reactor controllers, fuel controllers and other safety devices), please be sure to consult with our sales representative in advance.

Excellence in Electronics



**ROHM CO., LTD.**

21, Saiin Mizosaki-cho, Ukyo-ku, Kyoto  
615-8585, Japan  
TEL: (075)311-2121 FAX: (075)315-0172  
URL <http://www.rohm.com>

Contact us for further information about the products.

**Atlanta U.S.A. / ROHM ELECTRONICS EASTERN SALES DIVISION**  
(DIVISION OF ROHM ELE.U.S.A.,LLC)  
TEL: +1(770)754-5972 FAX: +1(770)754-0691

**Dallas U.S.A. / ROHM ELECTRONICS CENTRAL SALES DIVISION**  
(DIVISION OF ROHM ELE.U.S.A.,LLC)  
TEL: +1(972)312-9818 FAX: +1(972)312-0330

**San Diego U.S.A. / ROHM ELECTRONICS WESTERN SALES DIVISION**  
(DIVISION OF ROHM ELE.U.S.A.,LLC)  
TEL: +1(858)625-3630 FAX: +1(858)625-3670

**Germany / ROHM ELECTRONICS GERMANY SALES DIVISION**  
(DIVISION OF ROHM ELECTRONICS GMBH)  
TEL: +49(2154)9210 FAX: +49(2154)921400

**United Kingdom / ROHM ELECTRONICS UK SALES DIVISION**  
(DIVISION OF ROHM ELECTRONICS GMBH)  
TEL: +44(1)908-282-666 FAX: +44(1)908-282-528

**France / ROHM ELECTRONICS FRANCE SALES DIVISION**  
(DIVISION OF ROHM ELECTRONICS GMBH)  
TEL: +33(1)41 23 14 00 FAX: +33(1)41 23 14 30

**Hong Kong China / ROHM ELECTRONICS (H.K.) CO., LTD.**  
TEL: +852(2)7406262 FAX: +852(2)3758971

**Shanghai China / ROHM ELECTRONICS (SHANGHAI) CO., LTD.**  
TEL: +86(21)6279-2727 FAX: +86(21)6247-2066

**Dalian China / ROHM ELECTRONICS TRADING (DALIAN) CO., LTD.**  
TEL: +86(41)1230-8549 FAX: +86(41)1230-8537

**Beijing China / BEIJING REPRESENTATIVE OFFICE**  
TEL: +86(10)8451-2426 FAX: +86(10)6460-9518

**Taiwan / ROHM ELECTRONICS TAIWAN CO., LTD.**  
TEL: +886(2)2500-6956 FAX: +886(2)2503-2869

**Korea / ROHM ELECTRONICS KOREA CORPORATION**  
TEL: +82(2)8182-700 FAX: +82(2)8182-715

**Singapore / ROHM ELECTRONICS ASIA PTE.LTD. (RES/REI)**  
TEL: +65-332-2322 FAX: +65-332-5662

**Malaysia / ROHM ELECTRONICS (MALAYSIA) SDN. BHD.**  
TEL: +60(3)7958-8355 FAX: +60(3)7958-8377

**Philippines / ROHM ELECTRONICS (PHILIPPINES) SALES CORPORATION**  
TEL: +63(2)807-6872 FAX: +63(2)809-1422

**Thailand / ROHM ELECTRONICS (THAILAND) CO., LTD.**  
TEL: +66(2)254-4890 FAX: +66(2)256-6334