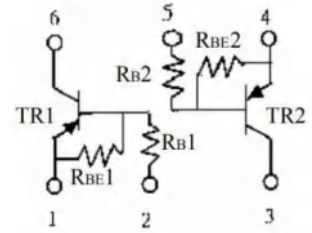




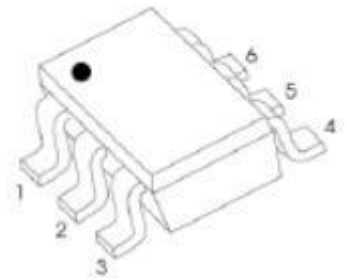
## PNP Silicon Epitaxial Planar Transistor

for switching and interface circuit and drive circuit applications



### Resistor Values

Type	R1 (K)	R2 (K)	MARKING
MMUN5111D W	10	10	0A
MMUN5112D W	22	22	0B
MMUN5113D W	47	47	0C
MMUN5114D W	10	47	0D
MMUN5115D W	10	∞	0E
MMUN5116D W	4.7	∞	0F
MMUN5130D W	1	1	0G
MMUN5131D W	2.2	2.2	0H
MMUN5132D W	4.7	4.7	0J
MMUN5133D W	4.7	47	0K
MMUN5134D W	22	47	0L
MMUN5135D W	2.2	47	0M



**SOT-363**

### Absolute Maximum Ratings ( $T_a = 25\text{ }^\circ\text{C}$ )

Parameter	Symbol	Value	Unit
Collector Base Voltage	$-V_{CBO}$	50	V
Collector Emitter Voltage	$-V_{CEO}$	50	V
Collector Current	$-I_C$	100	mA
Total Power Dissipation	$P_{tot}$	200	mW
Junction Temperature	$T_j$	150	$^\circ\text{C}$
Storage Temperature Range	$T_s$	- 55 to + 150	$^\circ\text{C}$



### ELECTRICAL CHARACTERISTICS (T<sub>A</sub> = 25°C unless otherwise noted)

Characteristic	Symbol	Min	Typ	Max	Unit
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### OFF CHARACTERISTICS

Collector–Base Cutoff Current (V <sub>CB</sub> = 50 V, I <sub>E</sub> = 0)	I <sub>CBO</sub>	–	–	100	nAdc
Collector–Emitter Cutoff Current (V <sub>CE</sub> = 50 V, I <sub>B</sub> = 0)	I <sub>CEO</sub>	–	–	500	nAdc
Emitter–Base Cutoff Current (V <sub>EB</sub> = 6.0 V, I <sub>C</sub> = 0)	MUN5111DW	–	–	0.5	mAdc
	MUN5112DW	–	–	0.2	
	MUN5113DW	–	–	0.1	
	MUN5114DW	–	–	0.2	
	MUN5115DW	–	–	0.9	
	MUN5116DW	–	–	1.9	
	MUN5130DW	–	–	4.3	
	MUN5131DW	–	–	2.3	
	MUN5132DW	–	–	1.5	
	MUN5133DW	–	–	0.18	
	MUN5134DW	–	–	0.13	
	MUN5135DW	–	–	0.2	
Collector–Base Breakdown Voltage (I <sub>C</sub> = 10 μA, I <sub>E</sub> = 0)	V <sub>(BR)CBO</sub>	50	–	–	Vdc
Collector–Emitter Breakdown Voltage (Note 4) (I <sub>C</sub> = 2.0 mA, I <sub>B</sub> = 0)	V <sub>(BR)CEO</sub>	50	–	–	Vdc

### ON CHARACTERISTICS (Note 4)

DC Current Gain (V <sub>CE</sub> = 10 V, I <sub>C</sub> = 5.0 mA)	MUN5111DW	h <sub>FE</sub>	35	60	250		
	MUN5112DW		60	100	–		
	MUN5113DW		80	140	–		
	MUN5114DW		80	140	–		
	MUN5115DW		160	250	–		
	MUN5116DW		160	250	–		
	MUN5130DW		3.0	5.0	–		
	MUN5131DW		8.0	15	–		
	MUN5132DW		15	27	–		
	MUN5133DW		80	140	–		
	MUN5134DW		80	130	–		
	MUN5135DW		80	140	–		
Collector–Emitter Saturation Voltage (I <sub>C</sub> = 10 mA, I <sub>E</sub> = 0.3 mA) (I <sub>C</sub> = 10 mA, I <sub>B</sub> = 5 mA) MUN5130DW/MUN5131DW (I <sub>C</sub> = 10 mA, I <sub>B</sub> = 1 mA) MUN5132DW/MUN5134DW	V <sub>CE(sat)</sub>	–	–	0.25	Vdc		
Output Voltage (on) (V <sub>CC</sub> = 5.0 V, V <sub>B</sub> = 2.5 V, R <sub>L</sub> = 1.0 kΩ)	MUN5111DW	V <sub>OL</sub>	–	–	0.2	Vdc	
	MUN5112DW		–	–	0.2		
	MUN5114DW		–	–	0.2		
	MUN5115DW		–	–	0.2		
	MUN5116DW		–	–	0.2		
	MUN5130DW		–	–	0.2		
	MUN5131DW		–	–	0.2		
	MUN5132DW		–	–	0.2		
	MUN5133DW		–	–	0.2		
	MUN5134DW		–	–	0.2		
	MUN5135DW		–	–	0.2		
	(V <sub>CC</sub> = 5.0 V, V <sub>B</sub> = 3.5 V, R <sub>L</sub> = 1.0 kΩ)		MUN5113DW	–	–		0.2

1. Pulse Test: Pulse Width < 300 μs, Duty Cycle < 2.0%



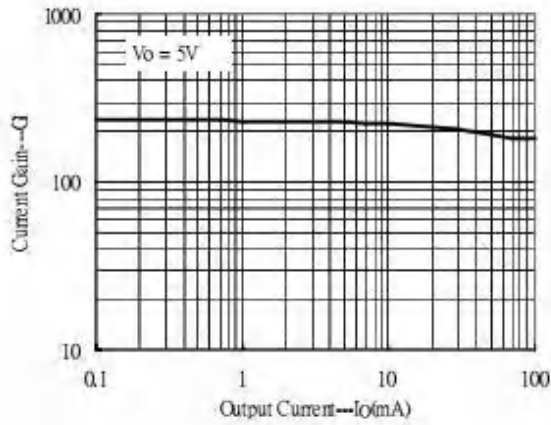
**ELECTRICAL CHARACTERISTICS** (T<sub>A</sub> = 25°C unless otherwise noted) (Continued)

Characteristic	Symbol	Min	Typ	Max	Unit
Output Voltage (off) (V <sub>CC</sub> = 5.0 V, V <sub>B</sub> = 0.5 V, R <sub>L</sub> = 1.0 kΩ) (V <sub>CC</sub> = 5.0 V, V <sub>B</sub> = 0.050 V, R <sub>L</sub> = 1.0 kΩ)   MUN5130DW (V <sub>CC</sub> = 5.0 V, V <sub>B</sub> = 0.25 V, R <sub>L</sub> = 1.0 kΩ)   MUN5115DW MUN5116DW/ MUN5131DW/ MUN5132DW	V <sub>OH</sub>	4.9	–	–	V <sub>dc</sub>
Input Resistor MUN5111DW MUN5112DW MUN5113DW MUN5114DW MUN5115DW MUN5116DW MUN5130DW MUN5131D W MUN5132DW MUN5133DW MUN5134DW MUN5135DW	R <sub>1</sub>	7.0 15.4 32.9 7.0 7.0 3.3 0.7 1.5 3.3 3.3 15.4 1.54	10 22 47 10 10 4.7 1.0 2.2 4.7 4.7 22 2.2	13 28.6 61.1 13 13 6.1 1.3 2.9 6.1 6.1 28.6 2.86	kΩ
Resistor Ratio   MUN5111DW/MUN5112DW/MUN5113DW/ MUN5136DW MUN5114DW MUN5115DW/MUN5116DW MUN5130DW/MUN5131DW/MUN5132DW MUN5133DW MUN5134DW MUN5135DW	R <sub>1</sub> /R <sub>2</sub>	0.8 0.17 – 0.8 0.055 0.38 0.038	1.0 0.21 – 1.0 0.1 0.47 0.047	1.2 0.25 – 1.2 0.185 0.56 0.056	

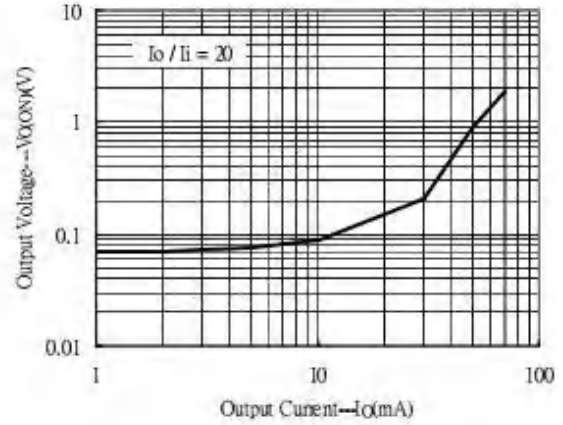


## Characteristic Curves

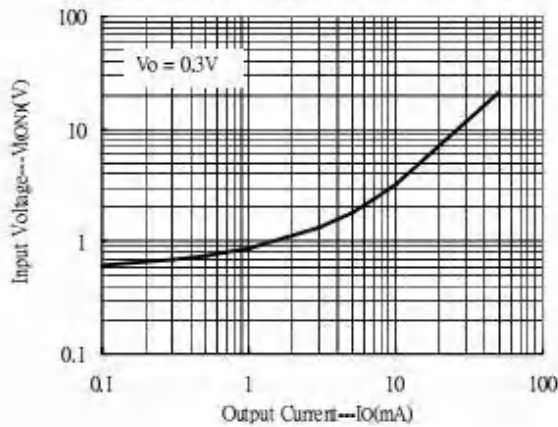
Current Gain vs Output Current



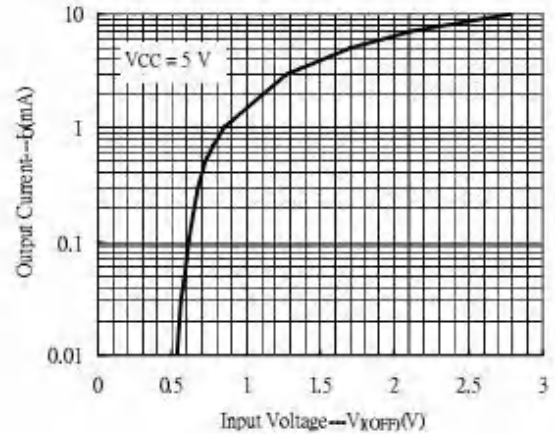
Output Voltage vs Output Current



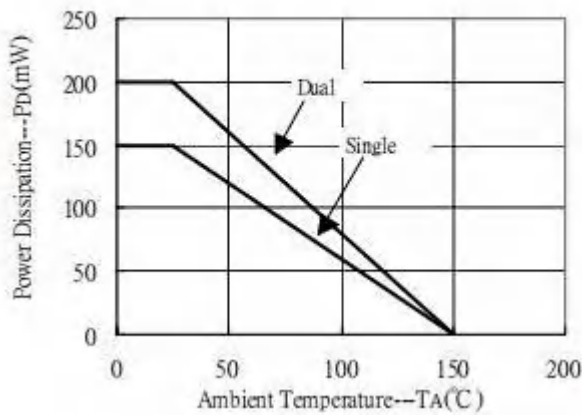
Input Voltage vs Output Current(ON characteristics)



Output Current vs Input Voltage(OFF characteristics)

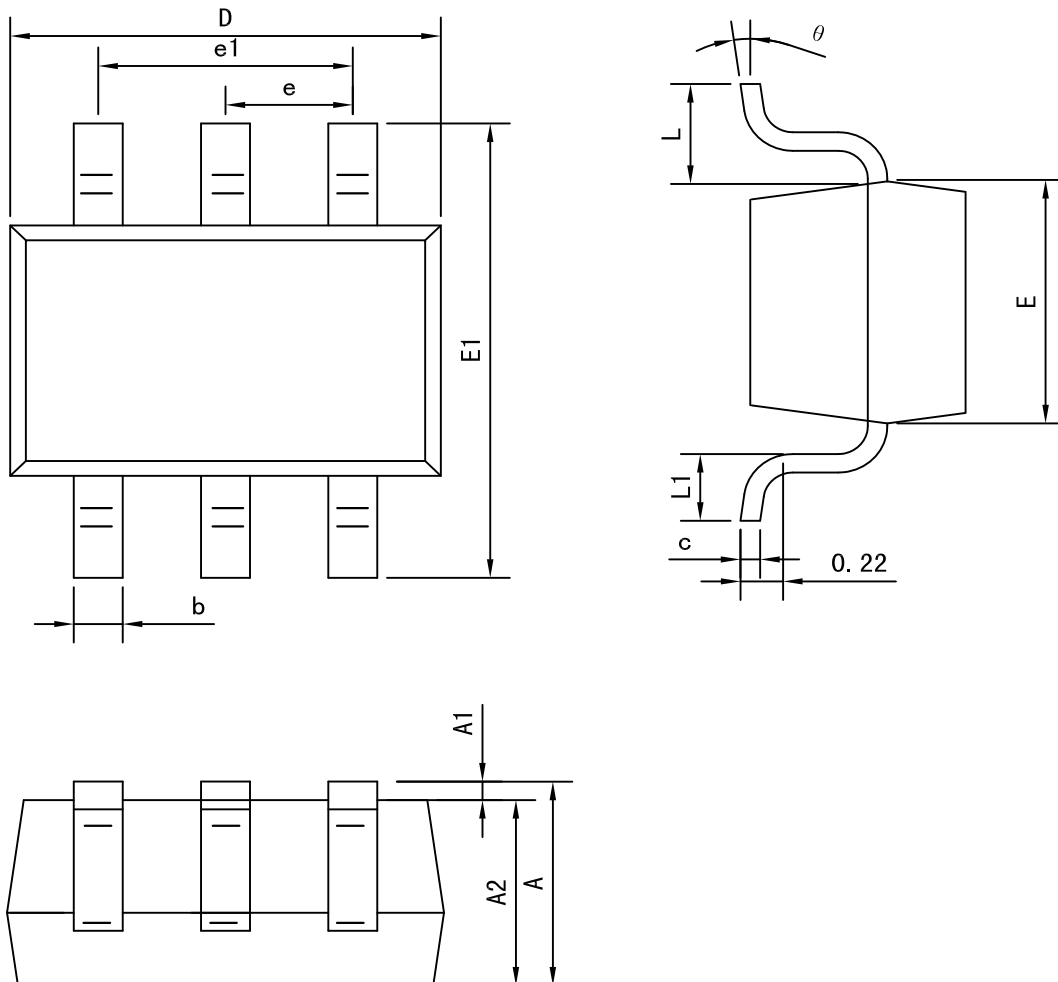


Power Derating Curves





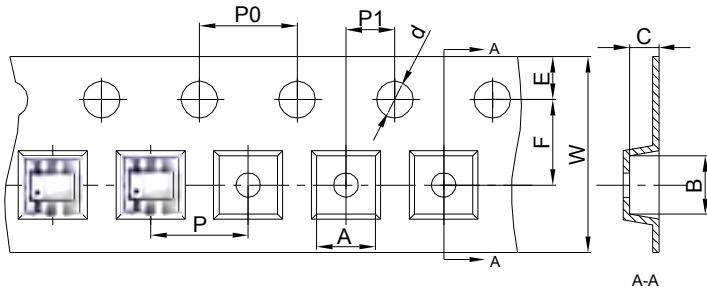
## SOT-363 Package outline dimensions



Symbol	Dimension in Millimeters	
	Min	Max
A	0.900	1.100
A1	0.000	0.100
A2	0.900	1.000
b	0.150	0.350
c	0.080	0.150
D	2.000	2.200
E	1.150	1.350
E1	2.150	2.450
e	0.650 TYP	
e1	1.200	1.400
L	0.525 REF	
L1	0.260	0.460
$\theta$	0°	8°



### SOT-363 Embossed Carrier Tape



#### Packaging Description:

SOT-363 parts are shipped in tape. The carrier tape is made from a dissipative (carbon filled) polycarbonate resin. The cover tape is a multilayer film (Heat Activated Adhesive in nature) primarily composed of polyester film, adhesive layer, sealant, and anti-static sprayed agent. These reeled parts in standard option are shipped with 3,000 units per 7" or 17.8cm diameter reel. The reels are clear in color and is made of polystyrene plastic (anti-static coated).

Dimensions are in millimeter										
Pkg type	A	B	C	d	E	F	P0	P	P1	W
SOT-363	2.25	2.55	1.20	Ø1.50	1.75	3.50	4.00	4.00	2.00	8.00

### SOT-363 Tape Leader and Trailer

