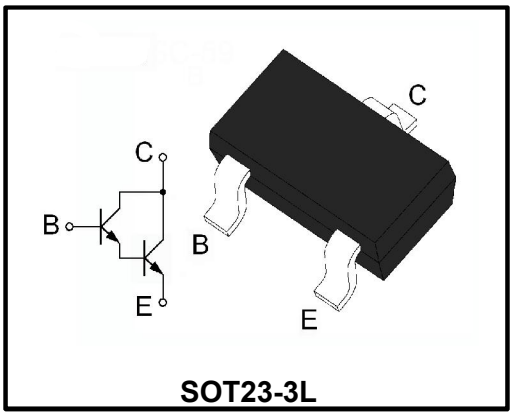
NPN Darlington Transistor



SOT23-3L

Application

- Lamp
- Relay
- Solenoid Driving

Features

- High breakdown voltage :BV_{CEO} > 100V
- High continuous collector current I_C= 900mA
- Peak pulse current I_{CM} = 5A
- Power dissipation 625mW
- h_{FE}> 5k up to 2A for high current gain hold up
- Complementary PNP Type:FMMT734

Marking: 634

Absolute Maximum Ratings (Ta=25℃, unless otherwise specified.)

Parameter	Symbol	Value	Unit
Collector-base voltage	BV_{CBO}	120	V
Collector-emitter voltage	BV_{CEO}	100	V
Emitter-base voltage	BV_{EBO}	12	V
Collector current	I_C	900	mA
Peak pulse current	I_{CM}	5	A
Power dissipation	P_D	625	mW
Junction temperature	T_j	150	°C
Storage temperature	T_{stg}	-55～+150	°C

Thermal Characteristics (Ta=25℃, unless otherwise specified.)

Parameter	Symbol	Conditions	Value	Unit
Junction to ambient	$R_{\theta JA}$	In air, 25mm^2 FR4 PCB	200	°C/W
Junction to ambient	$R_{\theta JA}$	Same as above, t = 5s	155	°C/W
Junction to leads	$R_{\theta JL}$	junction to solder point	194	°C/W

Electrical Characteristics (Ta=25℃, unless otherwise specified.)

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Collector-base breakdown voltage	BV_{CBO}	I_C = 100μA，I_E = 0	120			V
Collector-emitter breakdown voltage *	BV_{CEO}	I_C = 10mA，I_B = 0	100			V
Emitter-base breakdown voltage	BV_{EBO}	I_E = 100μA，I_C = 0	12			V
Collector cut-off current	I_{CBO}	V_{CB} = 80V，I_E = 0			10	nA
Collector emitter cutoff current	I_{CES}	V_{CES}= 80V			100	nA
Emitter cut-off current	I_{EBO}	V_{EB} = 7V，I_C = 0			10	nA
DC current gain *	h_{FE}	V_{CE} = 5V，I_C = 10mA V_{CE} = 5V，I_C = 100mA V_{CE} = 5V，I_C = 1A V_{CE} = 5V，I_C = 2A V_{CE} = 2V，I_C = 1A V_{CE} = 5V，I_C = 5A	20k 15k 5k	50k 60k 40k 14k 24k 600		
Collector-emitter saturation voltage *	$V_{CE(sat)}$	I_C = 100mA，I_B = 1mA I_C = 250mA，I_B = 1mA I_C =500mA，I_B = 5mA I_C =900mA，I_B = 5mA I_C =1A，I_B = 5mA		0.67 0.72 0.75 0.82 0.85	0.75 0.80 0.85 0.93 0.96	V
Base -emitter saturation voltage *	$V_{BE(sat)}$	I_C =1A，I_B = 5mA			1.65	V
Base -emitter on voltage *	$V_{BE(on)}$	V_{CE} = 5V，I_C = 1A			1.50	V
Current gain - bandwidth product	f_T	V_{CE} = 10V, I_C = 50mA f = 100 MHz		140		MHz
Output capacitance	C_{ob}	V_{CB} = 10 V, f = 1.0MHz			20	pF
Turn-on time	t_{on}	V_{CC}=20V, I_C = 50mA I_{B1} = - I_{B2} =1mA		290		ns
Turn-off time	t_{off}			2400		ns

* Measured under pulsed conditions. Pulse width 300μs. Duty cycle 2%

Typical Characteristics

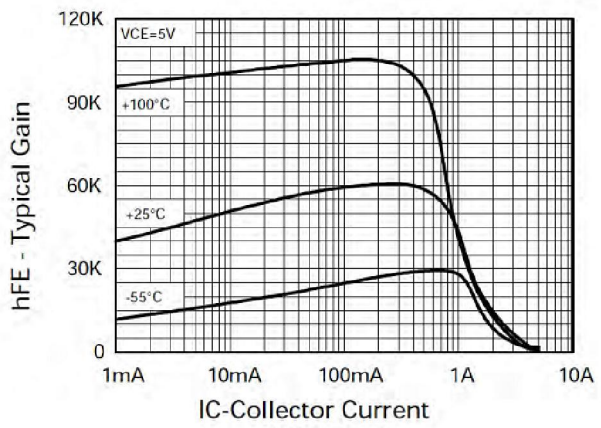


Figure 1. DC current Gain

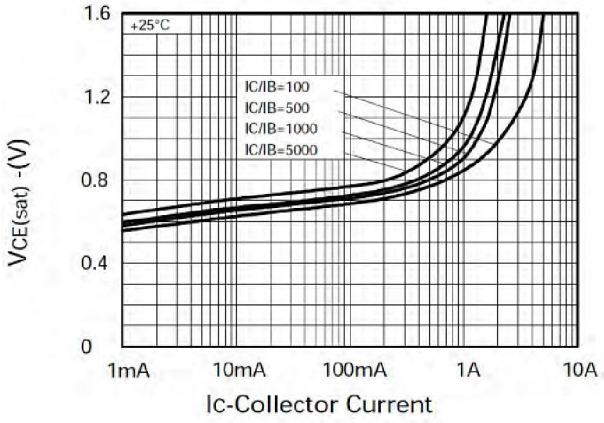


Figure 2. Collector-Emitter Saturation Voltage

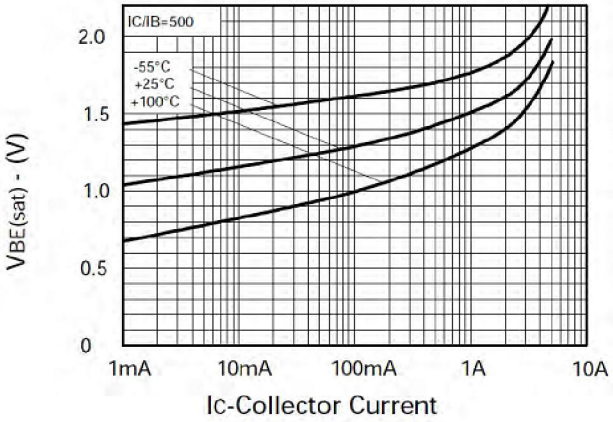


Figure 3. Base-Emitter Saturation Voltage

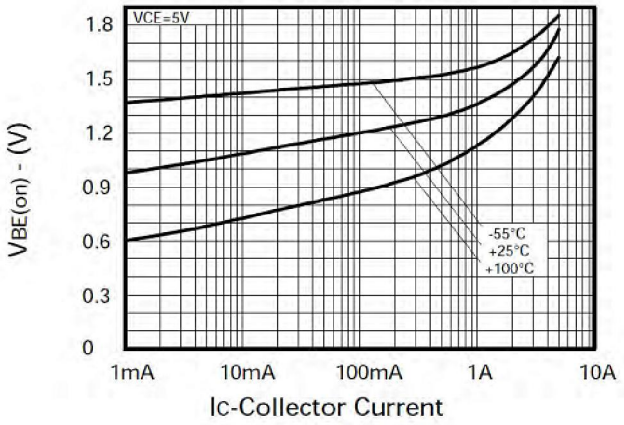


Figure 4. Base-Emitter on Voltage

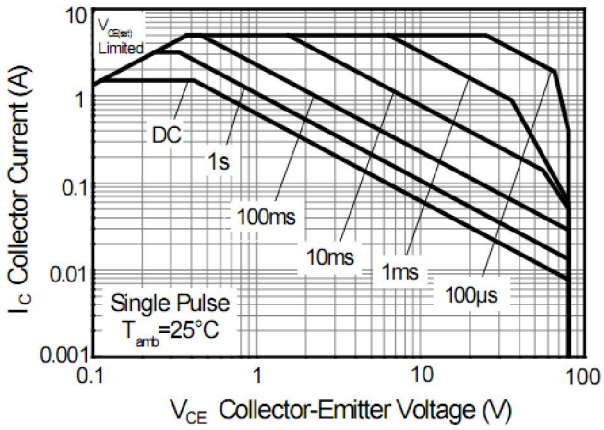


Figure 5. Safe Operating Area

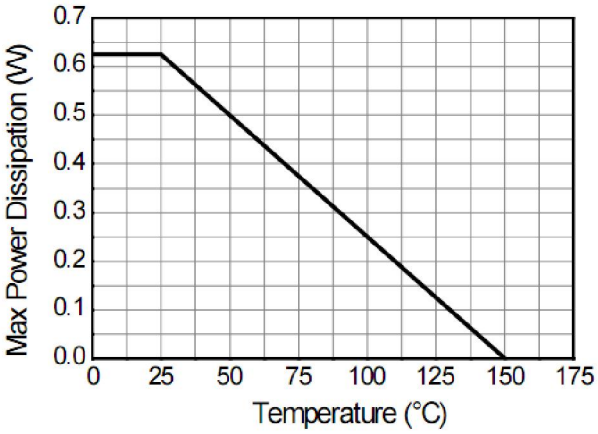
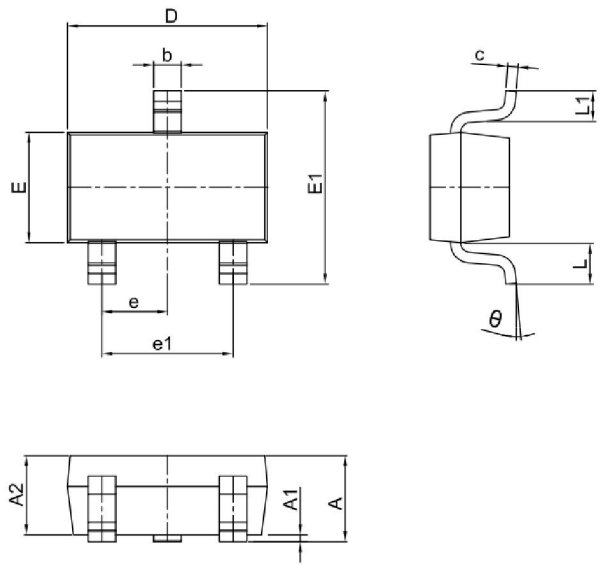


Figure 6. Derating Curve

Package Outline SOT23-3L



Dim	Millimeter		Inches	
	Min.	Max.	Min.	Max.
A	1.15	1.35	0.045	0.053
A1	0.00	0.10	0.000	0.004
A2	1.05	1.25	0.041	0.049
b	0.34	0.45	0.013	0.018
c	0.10	0.20	0.004	0.008
D	2.80	3.00	0.110	0.118
E	1.50	1.70	0.059	0.067
E1	2.80	3.00	0.110	0.118
e	0.90	1.00	0.035	0.039
e1	1.80	2.00	0.071	0.079
L	0.50	0.70	0.020	0.028
L1	0.30	0.60	0.012	0.024

Summary of Packing Options

Package	Package Description	Packing Quantity	Industry Standard
SOT23-3L	Tape/Reel,7"reel	3000	EIA-481-1

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