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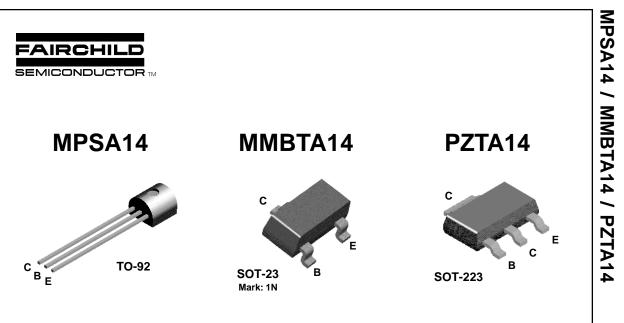


ON Semiconductor®

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NPN Darlington Transistor

This device is designed for applications requiring extremely high current gain at collector currents to 1.0 A. Sourced from Process 05.

Absolute Maximum Ratings* TA = 25°C unless otherwise noted

Symbol	Parameter	Value	Units
V _{CES}	Collector-Emitter Voltage	30	V
V _{CBO}	Collector-Base Voltage	30	V
V _{EBO}	Emitter-Base Voltage	10	V
Ic	Collector Current - Continuous	1.2	А
T _J , T _{stg}	Operating and Storage Junction Temperature Range	-55 to +150	°C

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

NOTES:

1) These ratings are based on a maximum junction temperature of 150 degrees C.
2) These are steady state limits. The factory should be consulted on applications involving pulsed or low duty cycle operations.

Thermal Characteristics TA = 25°C unless otherwise noted

Symbol	ool Characteristic Max			Units	
		MPSA14	*MMBTA14	**PZTA14	
P _D	Total Device Dissipation Derate above 25°C	625 5.0	350 2.8	1,000 8.0	mW mW/∘C
$R_{\theta JC}$	Thermal Resistance, Junction to Case	83.3			°C/W
$R_{ ext{ hetaJA}}$	Thermal Resistance, Junction to Ambient	200	357	125	°C/W

*Device mounted on FR-4 PCB 1.6" X 1.6" X 0.06."

** Device mounted on FR-4 PCB 36 mm X 18 mm X 1.5 mm; mounting pad for the collector lead min. 6 cm².

NPN Darlington Transistor (continued)

Electrical Characteristics TA = 25°C unless otherwise noted					
Symbol	I Parameter Test Conditions Min Max Un		Units		
OFF CHAF	RACTERISTICS				
V _{(BR)CES}	Collector-Emitter Breakdown Voltage	$I_{\rm C} = 100 \ \mu A, \ I_{\rm B} = 0$	30		V
I _{CBO}	Collector-Cutoff Current	$V_{CB} = 30 \text{ V}, I_E = 0$		100	nA
I _{EBO}	Emitter-Cutoff Current	V _{EB} = 10 V, I _C = 0		100	nA

ON CHARACTERISTICS*

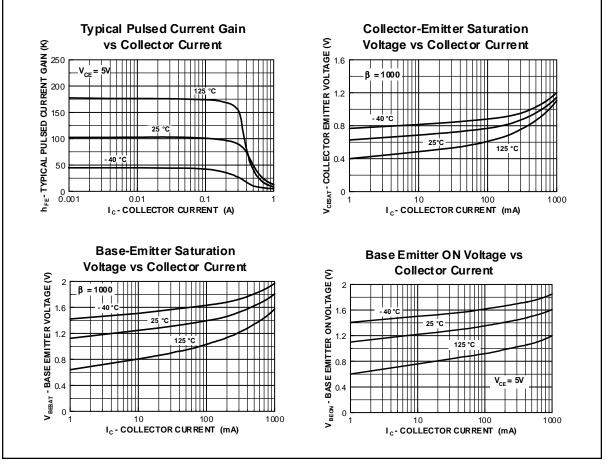
h _{FE}	DC Current Gain	$I_{C} = 10 \text{ mA}, V_{CE} = 5.0 \text{ V}$ $I_{C} = 100 \text{ mA}, V_{CE} = 5.0 \text{ V}$	10,000 20,000		
V _{CE(sat)}	Collector-Emitter Saturation Voltage	$I_{\rm C} = 100 \text{ mA}, I_{\rm B} = 0.1 \text{ mA}$		1.5	V
V _{BE(on)}	Base-Emitter On Voltage	$I_{\rm C}$ = 100 mA, $V_{\rm CE}$ = 5.0 V		2.0	V

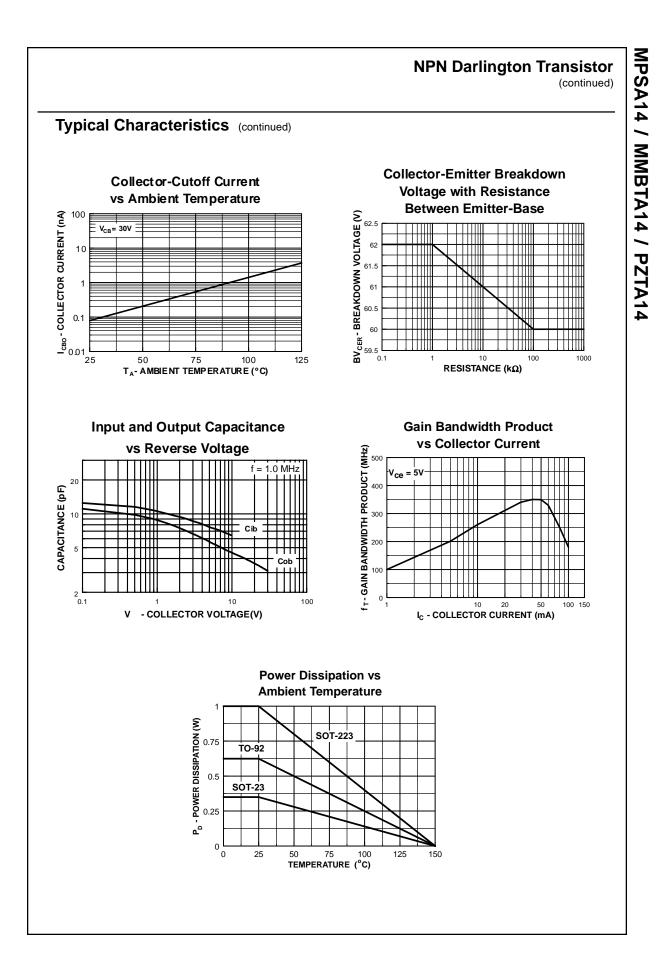
SMALL SIGNAL CHARACTERISTICS

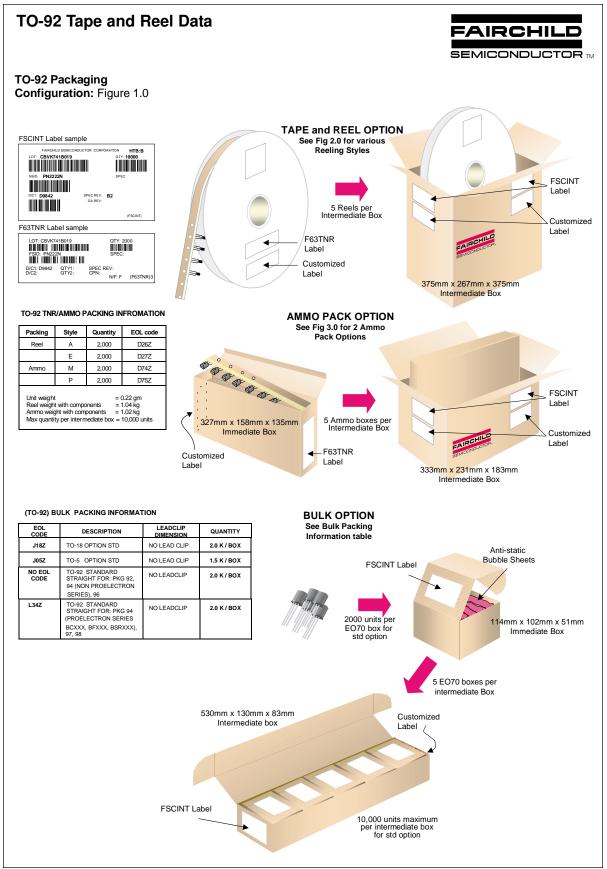
f⊤	Current Gain - Bandwidth Product	$I_{C} = 10 \text{ mA}, V_{CE} = 5 \text{ V},$ f = 100 MHz	125		MHz
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*Pulse Test: Pulse Width \leq 300 μ s, Duty Cycle \leq 2.0%

Typical Characteristics

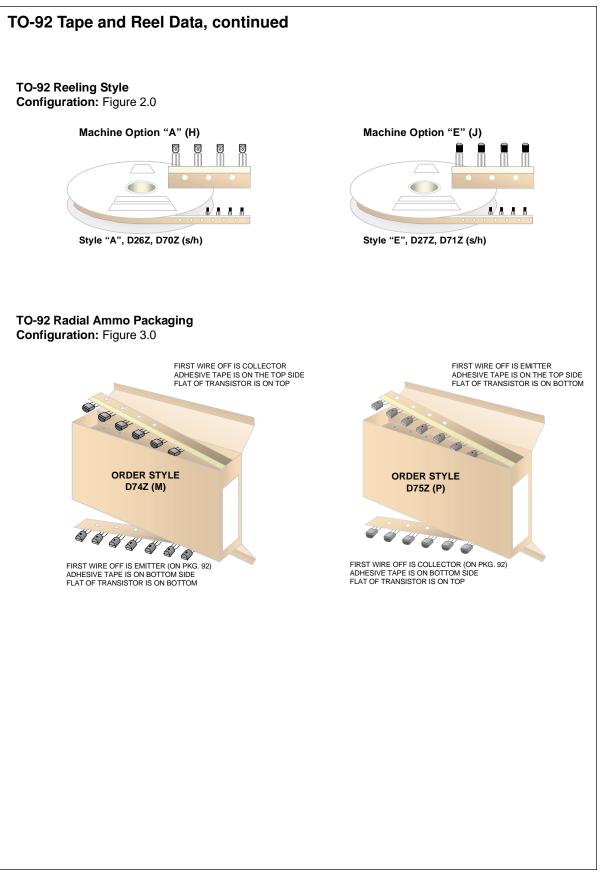


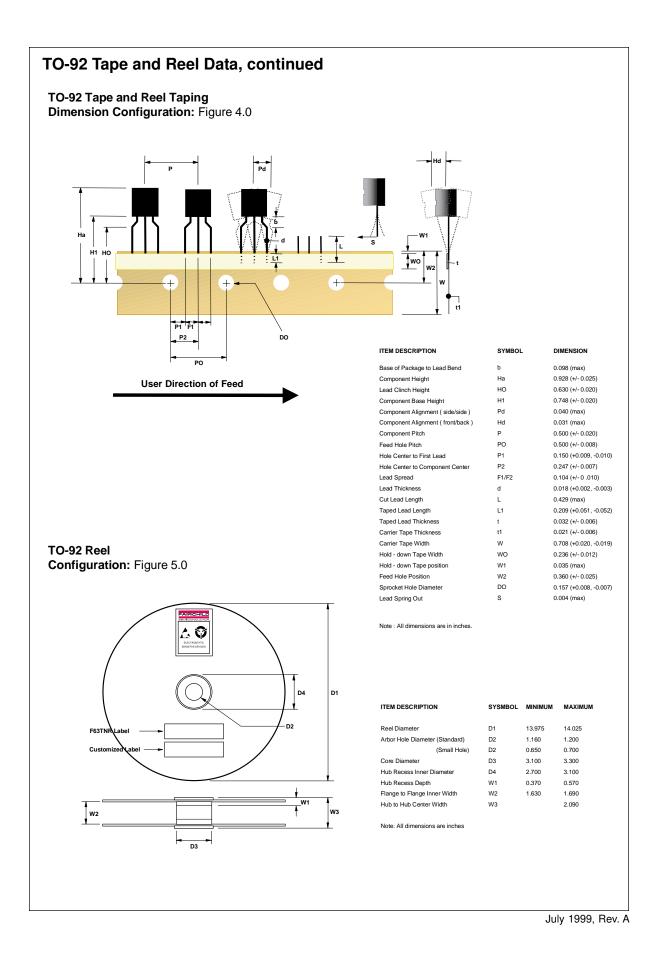


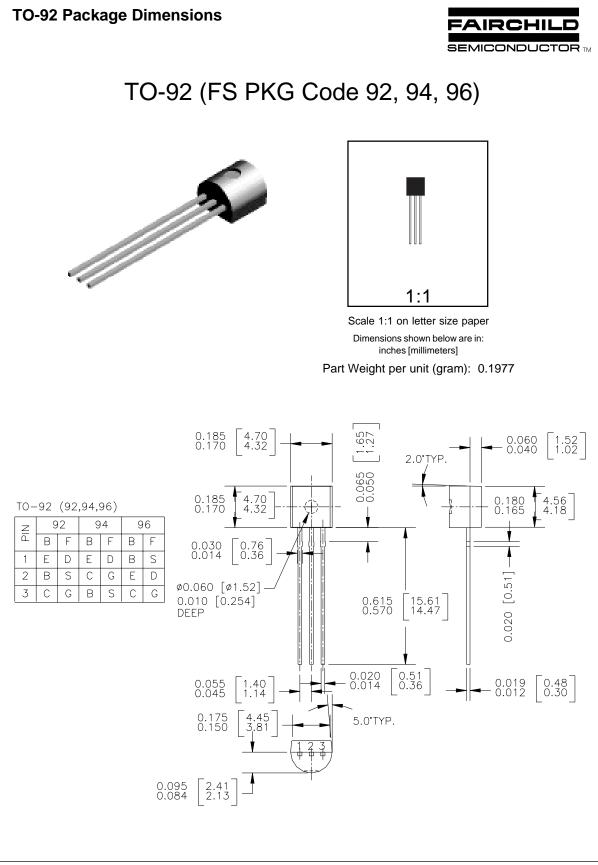


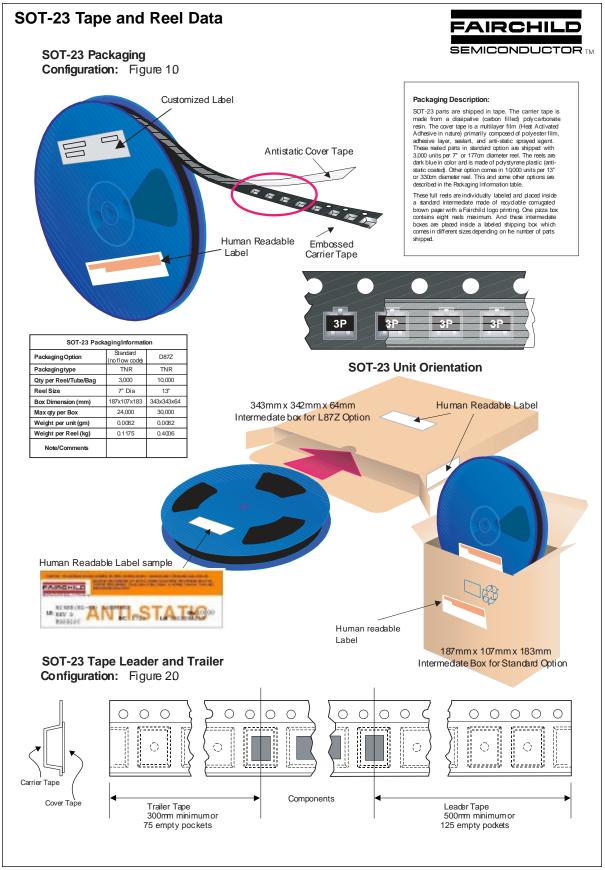
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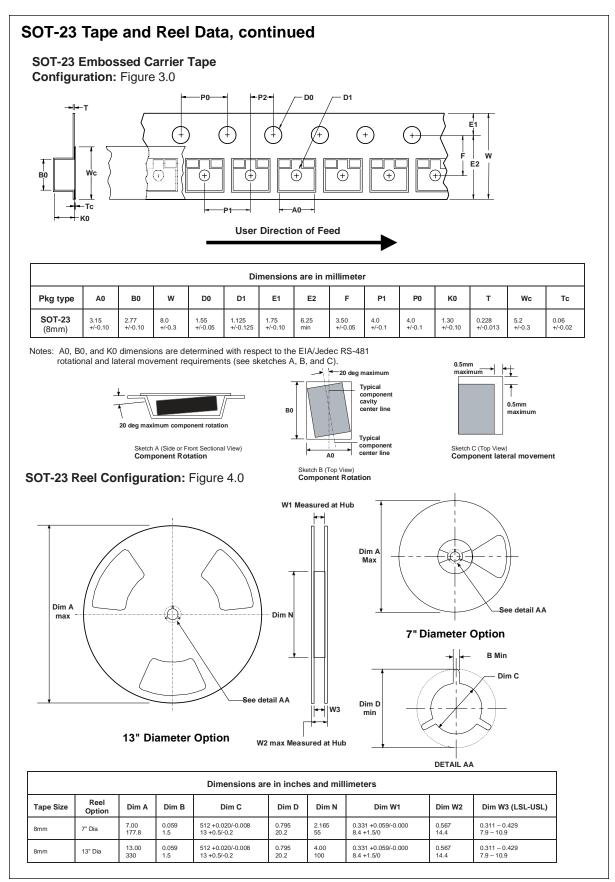




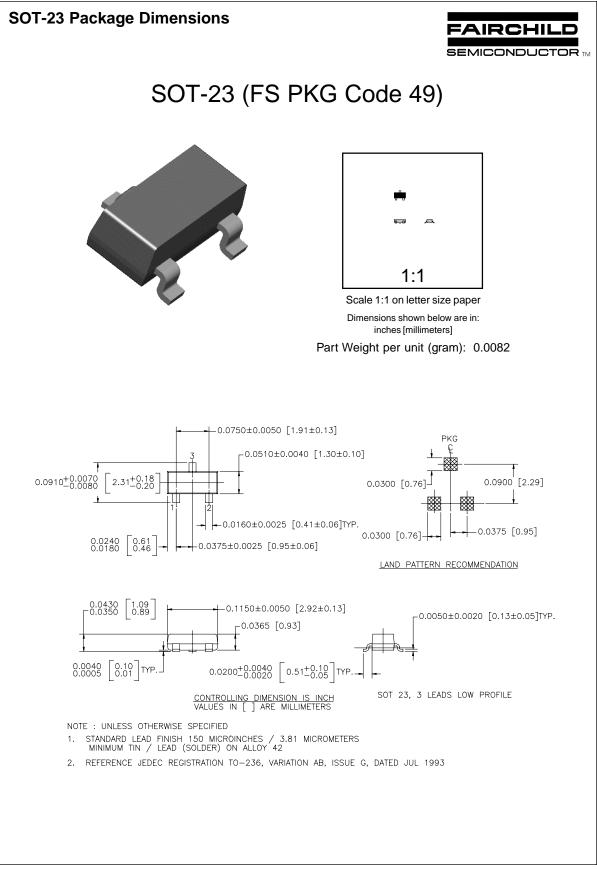


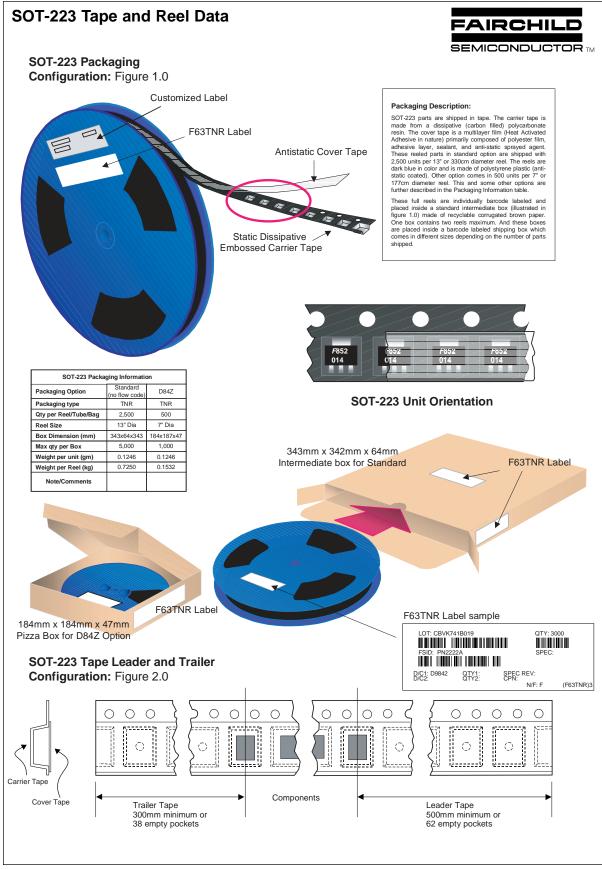
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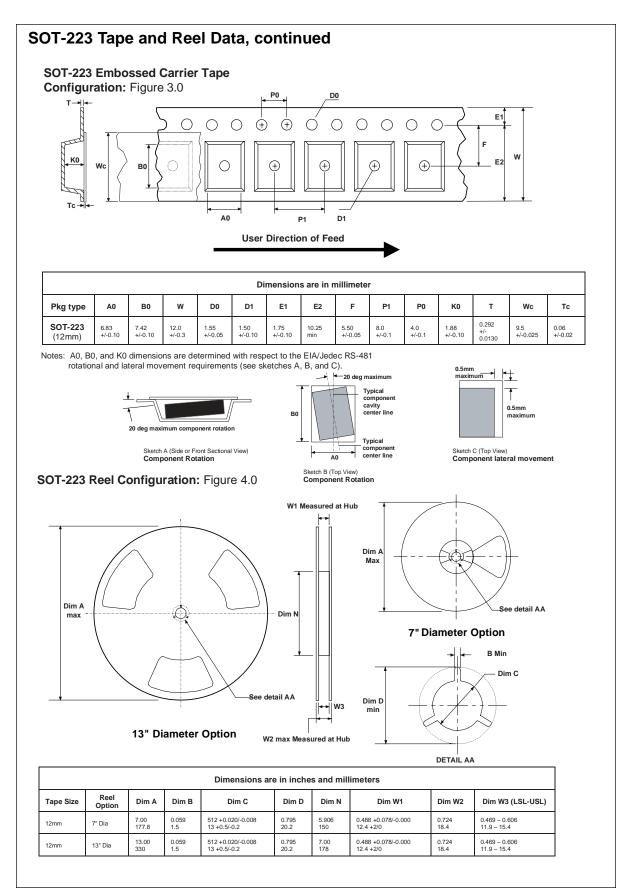
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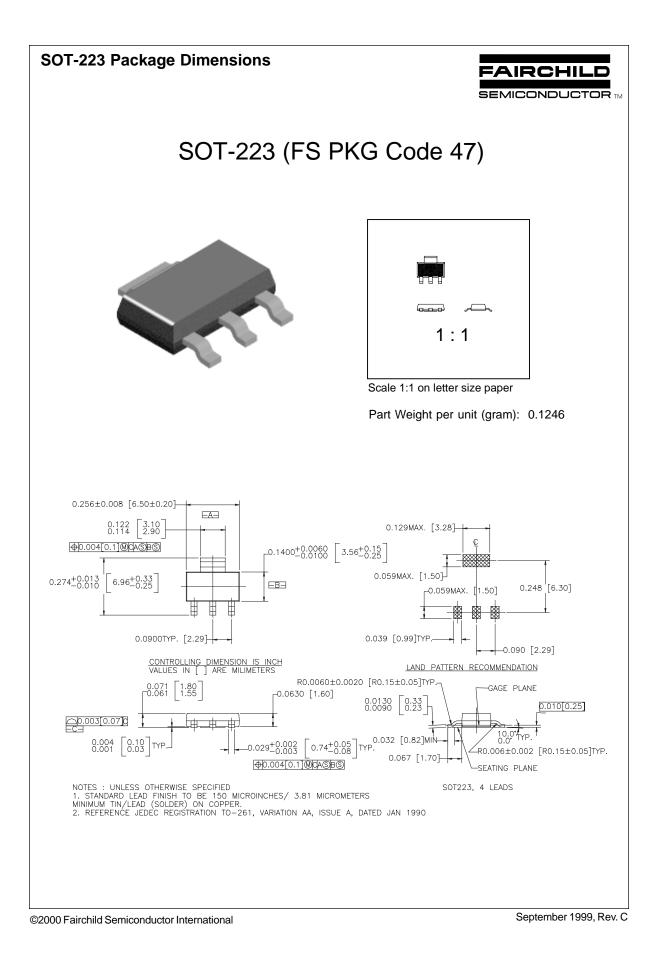




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