

**BUY47  
BUY48**

**SILICON  
HIGH CURRENT  
NPN TRANSISTORS**



**TO-39 CASE**



[www.centrasemi.com](http://www.centrasemi.com)

**DESCRIPTION:**

The CENTRAL SEMICONDUCTOR BUY48 and BUY47 are silicon NPN transistors designed for high voltage, high current switching applications.

**MARKING: FULL PART NUMBER**

**MAXIMUM RATINGS:** ( $T_C=25^\circ\text{C}$  unless otherwise noted)

	SYMBOL	BUY47	BUY48	UNITS
Collector-Base Voltage	$V_{CBO}$	150	200	V
Collector-Emitter Voltage	$V_{CEO}$	120	170	V
Emitter-Base Voltage	$V_{EBO}$	6.0		V
Continuous Collector Current	$I_C$	7.0		A
Peak Collector Current	$I_{CM}$	10		A
Power Dissipation ( $T_C=50^\circ\text{C}$ )	$P_D$	10		W
Power Dissipation ( $T_A=25^\circ\text{C}$ )	$P_D$	1.0		W
Operating and Storage Junction Temperature	$T_J, T_{stg}$	-65 to +200		$^\circ\text{C}$
Thermal Resistance	$\theta_{JC}$	15		$^\circ\text{C/W}$
Thermal Resistance	$\theta_{JA}$	175		$^\circ\text{C/W}$

**ELECTRICAL CHARACTERISTICS:** ( $T_C=25^\circ\text{C}$  unless otherwise noted)

SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNITS
$I_{CBO}$	$V_{CB}=80\text{V}$ (BUY47)			10	$\mu\text{A}$
$I_{CBO}$	$V_{CB}=100\text{V}$ (BUY48)			10	$\mu\text{A}$
$I_{CBO}$	$V_{CB}=80\text{V}, T_C=125^\circ\text{C}$ (BUY47)			1.0	mA
$I_{CBO}$	$V_{CB}=100\text{V}, T_C=125^\circ\text{C}$ (BUY48)			1.0	mA
$BV_{CBO}$	$I_C=1.0\text{mA}$ (BUY47)	150			V
$BV_{CBO}$	$I_C=1.0\text{mA}$ (BUY48)	200			V
$BV_{CEO}$	$I_C=20\text{mA}$ (BUY47)	120			V
$BV_{CEO}$	$I_C=20\text{mA}$ (BUY48)	170			V
$BV_{EBO}$	$I_E=1.0\text{mA}$	6.0			V
$V_{CE(SAT)}$	$I_C=2.0\text{A}, I_B=200\text{mA}$			0.45	V
$V_{CE(SAT)}$	$I_C=5.0\text{A}, I_B=500\text{mA}$			1.0	V
$V_{BE(SAT)}$	$I_C=2.0\text{A}, I_B=200\text{mA}$			1.1	V
$V_{BE(SAT)}$	$I_C=5.0\text{A}, I_B=500\text{mA}$			1.5	V
$h_{FE}$	$V_{CE}=5.0\text{V}, I_C=500\text{mA}$	40			
$h_{FE}$	$V_{CE}=5.0\text{V}, I_C=2.0\text{A}$	40			
$h_{FE}$	$V_{CE}=5.0\text{V}, I_C=5.0\text{A}$	15			
$f_T$	$V_{CE}=10\text{V}, I_C=100\text{mA}$		50		MHz
$C_{ob}$	$V_{CB}=50\text{V}, I_E=0, f=1.0\text{MHz}$			80	pF
$t_{on}$	$V_{CC}=40\text{V}, I_C=5.0\text{A}, I_{B1}=I_{B2}=500\text{mA}$			1.0	$\mu\text{s}$
$t_{off}$	$V_{CC}=40\text{V}, I_C=5.0\text{A}, I_{B1}=I_{B2}=500\text{mA}$			2.0	$\mu\text{s}$

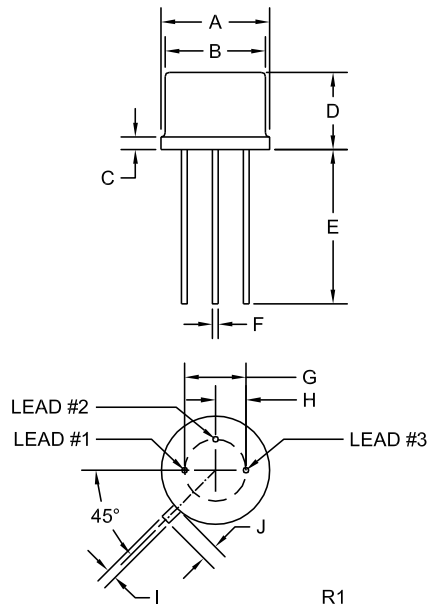
R0 (26-July 2013)

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TO-39 CASE - MECHANICAL OUTLINE



LEAD CODE:

- 1) Emitter
- 2) Base
- 3) Collector

MARKING: FULL PART NUMBER

DIMENSIONS				
SYMBOL	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A (DIA)	0.335	0.370	8.51	9.40
B (DIA)	0.315	0.335	8.00	8.51
C	-	0.040	-	1.02
D	0.240	0.260	6.10	6.60
E	0.500	-	12.70	-
F (DIA)	0.016	0.021	0.41	0.53
G (DIA)	0.200		5.08	
H	0.100		2.54	
I	0.028	0.034	0.71	0.86
J	0.029	0.045	0.74	1.14

TO-39 (REV: R1)

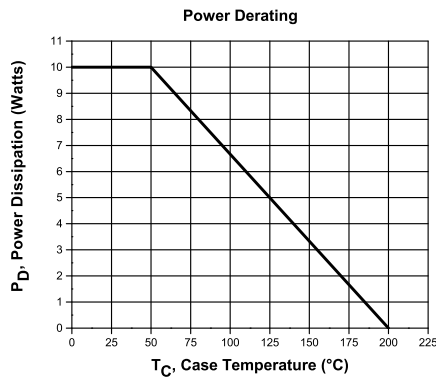
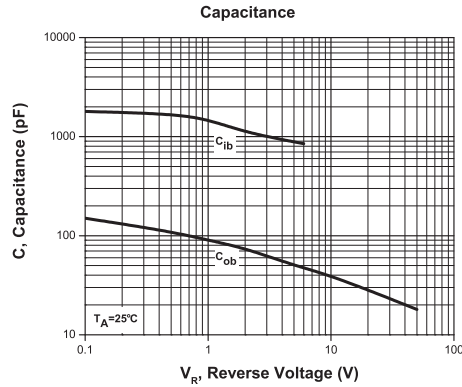
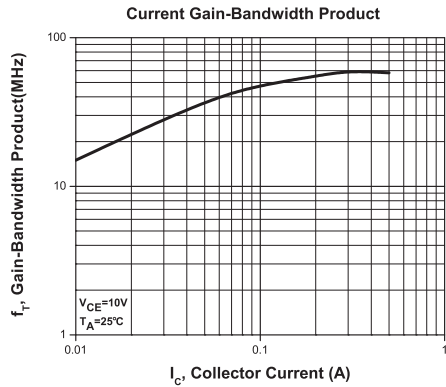
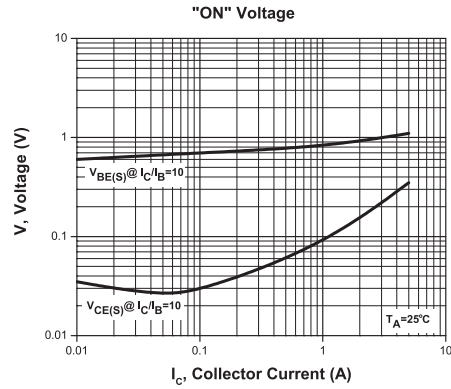
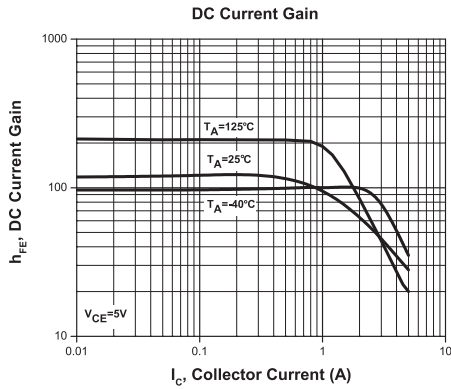
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**TYPICAL ELECTRICAL CHARACTERISTICS**



R0 (26-July 2013)