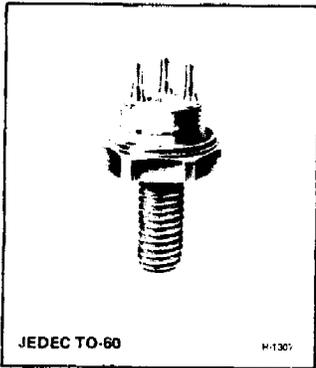


RF Power Transistors

2N5016



**High-Power Silicon N-P-N
 Overlay Transistor**

For VHF/UHF Communications Equipment

Features:

- For class B or C vhf/uhf military and industrial communications
- 15 W output (min.) at 400 MHz
- 23 W output (typ.) at 225 MHz
- Emitter grounded to case

MAXIMUM RATINGS, Absolute-Maximum Values:

*COLLECTOR-TO-BASE VOLTAGE	VCBO	65	V
COLLECTOR-TO-EMITTER VOLTAGE:			
With base-emitter junction reverse-biased, $V_{BE} = -1.5$ V	VCEV	65	V
With external base-to-emitter resistance, $R_{BE} = 30 \Omega$	V CER	40	V
* With base open	V CEO	30	V
*EMITTER-TO-BASE VOLTAGE	VEBO	4	V
*CONTINUOUS COLLECTOR CURRENT	IC	4.5	A
*CONTINUOUS BASE CURRENT	IB	1.5	A
*TRANSISTOR DISSIPATION:	PT		
At case temperatures up to 50°C		30	W
At case temperatures above 50°C			See Fig. 1
*TEMPERATURE RANGE:			
Storage & Operating (Junction)		-65 to 200	°C
*LEAD TEMPERATURE (During soldering):			
At distances $\geq 1/32$ in. (0.8 mm) from insulating wafer for 10 s max.		230	°C

*In accordance with JEDEC registration data.



NJ Semi-Conductors reserves the right to change test conditions, parameters limits and package dimensions without notice information furnished by NJ Semi-Conductors is believed to be both accurate and reliable at the time of going to press. However NJ Semi-Conductors assumes no responsibility for any errors or omissions discovered in its use. NJ Semi-Conductors encourages customers to verify that datasheets are current before placing orders.

Quality Semi-Conductors

ELECTRICAL CHARACTERISTICS, Case Temperature (T_C) = 25°C

STATIC

CHARACTERISTIC	SYMBOL	TEST CONDITIONS						LIMITS		UNITS
		DC COLLECTOR OR BASE VOLTAGE - V			DC CURRENT mA			MIN.	MAX.	
		V _{CB}	V _{CE}	V _{BE}	I _E	I _B	I _C			
Collector-Cutoff Current With base open	I _{CEO}		30			0		-	10	mA
With base-emitter junction reverse-biased	I _{CEV}		60	-1.5				-	10	
T _C = 150°C			30	-1.5				-	10	
Emitter Cutoff Current V _{BE} = 4 V	I _{EBO}							-	5	mA
Collector-to-Emitter Sustaining Voltage With base open	V _{CE(sus)}					0	200 ^a	30	-	V
With external base-to-emitter resistance (R _{BE}) = 30 Ω	V _{CE(sus)}					0	200 ^a	40	-	
With base-emitter junction reverse-biased	V _{CE(sus)}			-1.5			200 ^a	65	-	
Emitter-to-Base Breakdown Voltage	V _{(BR)EBO}				5		0	4	-	V
Collector-to-Emitter Saturation Voltage	V _{CE(sat)}					400	2000	-	1	V
DC Forward Current Transfer Ratio	h _{FE}		4	4			4500 500	3 10	- 200	
Thermal Resistance: Junction-to-Case	R _{θJ-C}							-	5	°C/W

DYNAMIC

Available Amplifier Signal Input Power (P _{OE} = 15 W, Z _{IN} = 50 Ω, V _{CC} = 28 V, f = 400 MHz) See Fig. 3	P _i								-	5	W
Collector Efficiency (P _{IE} = 5 W, P _{OE} = 15 W, Z _L = 50 Ω, f = 400 MHz) See Fig. 3	η _C								50	-	%
Magnitude of Common-Emitter, Small-Signal, Short-Circuit, Forward Current Transfer Ratio (f = 400 MHz)	h _{fe}		15				500	1.25	-		
Gain-Bandwidth Product	f _T		15				500	600 (typ.)			MHz
Collector-to-Base Capacitance (f = 1 MHz)	C _{ob}	30				0			-	25	pF

TYPICAL APPLICATION INFORMATION

RF Power Output Amplifier, Unneutralized At 225 MHz (See Fig. 2) 400 MHz (See Fig. 3)	P _{OE}		28 28					23 ^b (typ.) 15 ^c	-		W
Dynamic Input Impedance at 400 MHz (See Fig. 3)	Z _{IN}		28					2.5 + j5 (typ.) ^c			Ω

^aPulsed through an inductor (25 mH); duty factor = 50%.

^bFor P_{IE} = 5.0 W; minimum efficiency = 60%.

^cFor P_{IE} = 5.0 W; minimum efficiency > 50%.

^dIn accordance with JEDEC registration data.