

# Central<sup>TM</sup> Semiconductor Corp.

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Manufacturers of World Class Discrete Semiconductors

2N4856A THRU 2N4861A

N-CHANNEL JFET

JEDEC TO-18 CASE

## DESCRIPTION

The CENTRAL SEMICONDUCTOR 2N4856A series types are silicon N-Channel field effect transistors designed for switching applications.

MAXIMUM RATINGS ( $T_A=25^\circ\text{C}$ )

	SYMBOL	2N4856A	2N4859A	2N4857A	2N4860A	2N4858A	2N4861A	UNIT
Drain-Gate Voltage	$V_{DG}$	40	30					V
Drain-Source Voltage	$V_{DS}$	40	30					V
Reverse Gate-Source Voltage	$V_{GSR}$	40	30					V
Gate Current	$I_G$		50					mA
Power Dissipation	$P_D$		360					mW
Operating and Storage	$T_J, T_{STG}$	-65 to +200						$^\circ\text{C}$

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

SYMBOL	TEST CONDITIONS	MIN	MAX	UNIT
$I_{GSS}$	$V_{GS}=\frac{1}{2}$ Rated $V_{DS}$	-	0.25	nA
$I_{GSS}$	$V_{GS}=\frac{1}{2}$ Rated $V_{DS}$ , $T_A=150^\circ\text{C}$	-	0.50	$\mu\text{A}$
$I_{DSS}$	$V_{DS}=15\text{V}$ (2N4856A, 2N4859A)	50	-	mA
$I_{DSS}$	$V_{DS}=15\text{V}$ (2N4857A, 2N4860A)	20	100	mA
$I_{DSS}$	$V_{DS}=15\text{V}$ (2N4858A, 2N4861A)	8.0	80	mA
$I_D(\text{OFF})$	$V_{DS}=15\text{V}$ , $V_{GS}=10\text{V}$	-	0.25	nA
$I_D(\text{OFF})$	$V_{DS}=15\text{V}$ , $V_{GS}=10\text{V}$ , $T_A=150^\circ\text{C}$	-	0.50	$\mu\text{A}$
$BV_{GSS}$	$I_G=1.0\mu\text{A}$ (2N4856A, 2N4857A, 2N4858A)	40	-	V
$BV_{GSS}$	$I_G=1.0\mu\text{A}$ (2N4859A, 2N4860A, 2N4861A)	30	-	V
$V_{DS}(\text{ON})$	$I_D=20\text{mA}$ (2N4856A, 2N4859A)	-	0.75	V
$V_{DS}(\text{ON})$	$I_D=10\text{mA}$ (2N4857A, 2N4860A)	-	0.50	V
$V_{DS}(\text{ON})$	$I_D=5.0\text{mA}$ (2N4858A, 2N4861A)	-	0.50	V
$V_{GS}(\text{OFF})$	$V_{DS}=15\text{V}$ , $I_D=0.5\text{nA}$ (2N4856A, 2N4859A)	4.0	10	V
$V_{GS}(\text{OFF})$	$V_{DS}=15\text{V}$ , $I_D=0.5\text{nA}$ (2N4857A, 2N4860A)	2.0	6.0	V
$V_{GS}(\text{OFF})$	$V_{DS}=15\text{V}$ , $I_D=0.5\text{nA}$ (2N4858A, 2N4861A)	0.8	4.0	V
$r_{ds}(\text{ON})$	$V_{GS}=0$ , $I_D=0$ , $f=1.0\text{kHz}$ (2N4856A, 2N4859A)	-	25	$\Omega$
$r_{ds}(\text{ON})$	$V_{GS}=0$ , $I_D=0$ , $f=1.0\text{kHz}$ (2N4857A, 2N4860A)	-	40	$\Omega$
$r_{ds}(\text{ON})$	$V_{GS}=0$ , $I_D=0$ , $f=1.0\text{kHz}$ (2N4858A, 2N4861A)	-	60	$\Omega$
$C_{iss}$	$V_{GS}=10\text{V}$ , $V_{DS}=0$ , $f=1.0\text{MHz}$		10	pF
$C_{rss}$	$V_{GS}=10\text{V}$ , $V_{DS}=0$ , $f=1.0\text{MHz}$ (2N4856A, 2N4859A)		4.0	pF
$C_{rss}$	$V_{GS}=10\text{V}$ , $V_{DS}=0$ , $f=1.0\text{MHz}$ (2N4857A, 2N4858A, 2N4860A, 2N4861A)		3.5	pF
$t_{ON}$	$V_{DD}=10\text{V}$ , $V_{GS}(\text{ON})=0$ , $V_{GS}(\text{OFF})=10\text{V}$ , $I_D(\text{ON})=20\text{mA}$ (2N4856A, 2N4859A)		9.0	ns
$t_{ON}$	$V_{DD}=10\text{V}$ , $V_{GS}(\text{ON})=0$ , $V_{GS}(\text{OFF})=6.0\text{V}$ , $I_D(\text{ON})=10\text{mA}$ (2N4857A, 2N4860A)		10	ns
$t_{ON}$	$V_{DD}=10\text{V}$ , $V_{GS}(\text{ON})=0$ , $V_{GS}(\text{OFF})=4.0\text{V}$ , $I_D(\text{ON})=5.0\text{mA}$ (2N4858A, 2N4861A)		16	ns
$t_{OFF}$	$V_{DD}=10\text{V}$ , $V_{GS}(\text{ON})=0$ , $V_{GS}(\text{OFF})=10\text{V}$ , $I_D(\text{ON})=20\text{mA}$ (2N4856A, 2N4859A)		20	ns
$t_{OFF}$	$V_{DD}=10\text{V}$ , $V_{GS}(\text{ON})=0$ , $V_{GS}(\text{OFF})=6.0\text{V}$ , $I_D(\text{ON})=10\text{mA}$ (2N4857A, 2N4860A)		40	ns
$t_{OFF}$	$V_{DD}=10\text{V}$ , $V_{GS}(\text{ON})=0$ , $V_{GS}(\text{OFF})=4.0\text{V}$ , $I_D(\text{ON})=5.0\text{mA}$ (2N4858A, 2N4861A)		80	ns