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TECHNICAL DATA SHEET

N-CHANNEL MOSFET

Qualified per MIL-PRF-19500/555

DEVICES

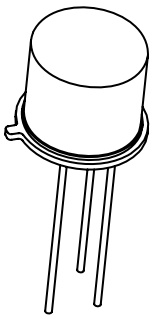
2N6788 2N6788U

LEVELS

JAN
JANTX
JANTXV

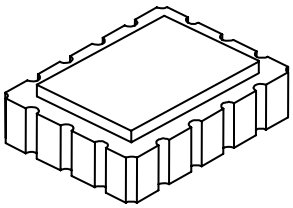
ABSOLUTE MAXIMUM RATINGS ***(T_C = +25°C unless otherwise noted)***

Parameters / Test Conditions		Symbol	Value	Unit
Drain – Source Voltage		V_{DS}	100	Vdc
Gate – Source Voltage		V_{GS}	± 20	Vdc
Continuous Drain Current T_C = +25°C	2N6788 2N3788U	I_{D1}	6.0 4.5	Adc
Continuous Drain Current T_C = +100°C	2N6788 2N3788U	I_{D2}	3.5 2.8	Adc
Max. Power Dissipation	2N6788 2N3788U	P_{tl}	20 (1) 14	W
Drain to Source On State Resistance		$R_{ds(on)}$	0.30 (2)	Ω
Operating & Storage Temperature		T_{op}, T_{stg}	-55 to +150	°C



TO-205AF
(formerly TO-39)

Note: (1) Derated Linearly by 0.16 W/°C (2N6788); 0.11 W/°C (2N6788U) for T_C > +25°C
(2) V_{GS} = 10Vdc, I_D = 3.5A (2N6788), 2.8A (2N6788U)



U – 18 LCC

ELECTRICAL CHARACTERISTICS ***(T_A = +25°C, unless otherwise noted)***

Parameters / Test Conditions	Symbol	Min.	Max.	Unit
OFF CHARACTERTICS				
Drain-Source Breakdown Voltage V_{GS} = 0V, I_D = 1mAdc	$V_{(BR)DSS}$	100		Vdc
Gate-Source Voltage (Threshold) $V_{DS} \geq V_{GS}$, I_D = 0.25mA $V_{DS} \geq V_{GS}$, I_D = 0.25mA, T_j = +125°C $V_{DS} \geq V_{GS}$, I_D = 0.25mA, T_j = -55°C	$V_{GS(th)1}$ $V_{GS(th)2}$ $V_{GS(th)3}$	2.0 1.0	4.0 5.0	Vdc
Gate Current V_{GS} = ±20V, V_{DS} = 0V V_{GS} = ±20V, V_{DS} = 0V, T_j = +125°C	I_{GSS1} I_{GSS2}		±100 ±200	nAdc

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ELECTRICAL CHARACTERISTICS ***(T_A = +25°C, unless otherwise noted) (Cont.)***

Parameters / Test Conditions		Symbol	Min.	Max.	Unit
OFF CHARACTERTICS					
Drain Current V_{GS} = 0V, V_{DS} = 80V V_{GS} = 0V, V_{DS} = 80V, T_j = +125°C		 I_{DSS1} I_{DSS2}		 25 0.25	 µAdc mAdc
Static Drain-Source On-State Resistance V_{GS} = 10V, I_D = 3.5A pulsed V_{GS} = 10V, I_D = 2.8A pulsed V_{GS} = 10V, I_D = 6.0A pulsed V_{GS} = 10V, I_D = 4.5A pulsed T_j = +125°C V_{GS} = 10V, I_D = 3.5A pulsed V_{GS} = 10V, I_D = 2.8A pulsed	 2N6788 2N3788U 2N6788 2N3788U 2N6788 2N3788U	 $r_{DS(on)1}$ $r_{DS(on)2}$ $r_{DS(on)3}$		 0.30 0.35 0.54	 Ω Ω Ω
Diode Forward Voltage V_{GS} = 0V, I_D = 6.0A pulsed V_{GS} = 0V, I_D = 4.5A pulsed	2N6788 2N3788U	V_{SD}		1.8	Vdc

DYNAMIC CHARACTERISTICS

Parameters / Test Conditions			Symbol	Min.	Max.	Unit
Gate Charge: On-State Gate Charge Gate to Source Charge Gate to Drain Charge	 V_{DS} = 50V V_{GS} = 10V, I_D = 6.0A V_{GS} = 10V, I_D = 4.5A	 2N6788 2N3788U	 $Q_{g(on)}$ Q_{gs} Q_{gd}		 18.0 4.0 9.0	nC

SWITCHING CHARACTERISTICS

Parameters / Test Conditions			Symbol	Min.	Max.	Unit
Switching time tests: Turn-on delay time Rinse time Turn-off delay time Fall time	 I_D = 6.0A, V_{GS} = 10Vdc I_D = 4.5A, V_{GS} = 10Vdc Gate drive impedance = 7.5Ω, V_{DD} = 35Vdc	 2N6788 2N3788U	 $t_{d(on)}$ t_r $t_{d(off)}$ t_f		 40 70 40 70	ns
Diode Reverse Recovery Time	di/dt ≤ 100A/µs, V_{DD} ≤ 50V, I_F = 6.0A I_F = 4.5A	2N6788 2N3788U	t_{rr}		240	ns

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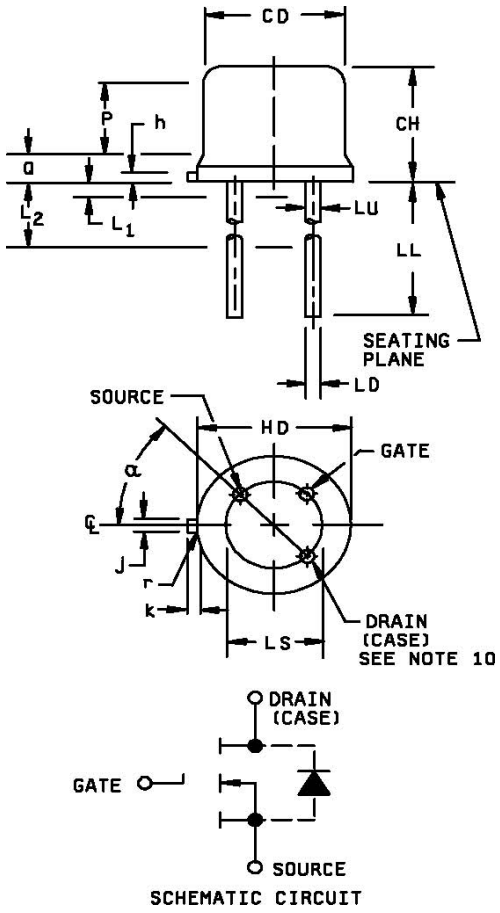
TECHNICAL DATA SHEET

PACKAGE DIMENSIONS



Ltr	Dimensions				Notes
	Inches		Millimeters		
	Min	Max	Min	Max	
CD	.305	.355	7.75	9.02	
CH	.160	.180	4.07	4.57	
HD	.335	.370	8.51	9.39	
h	.009	.041	0.23	1.04	
J	.028	.034	0.72	0.86	2
k	.029	.045	0.74	1.14	3
LD	.016	.021	0.41	0.53	7, 8
LL	.500	.750	12.7	19.05	7, 8
LS	.200 TP		5.08 TP		6
LU	.016	.019	0.41	0.48	7, 8
L1		.050		1.27	7, 8
L2	.250		6.35		7, 8
P	.070		1.78		5
Q		.050		1.27	4
r		.010		0.25	9
α	45° TP		45° TP		6

NOTES:

1 Dimensions are in inches. Millimeters are given for general information only.
2 Beyond radius (r) maximum, j shall be held for a minimum length of .011 (0.028 mm).
3 Dimension k measured from maximum HD.
4 Outline in this zone is not controlled.
5 Dimension CD shall not vary more than .010 (0.25 mm) in zone P. This zone is controlled for automatic handling.
6 Leads at gauge plane .054 +.001, -.000 (1.37 +0.03, -0.00 mm) below seating plane shall be within .007 (0.18 mm) radius of true position (TP) at maximum material condition (MMC) relative to tab at MMC.
7 LU applies between L1 and L2. LD applies between L2 and L minimum. Diameter is uncontrolled in L1 and beyond LL minimum.
8 All three leads.
9 Radius (r) applies to both inside corners of tab.
10 Drain is electrically connected to the case.
11 In accordance with ASME Y14.5M, diameters are equivalent to φx symbology.

*** FIGURE 1-** Physical dimensions for TO-205AF.

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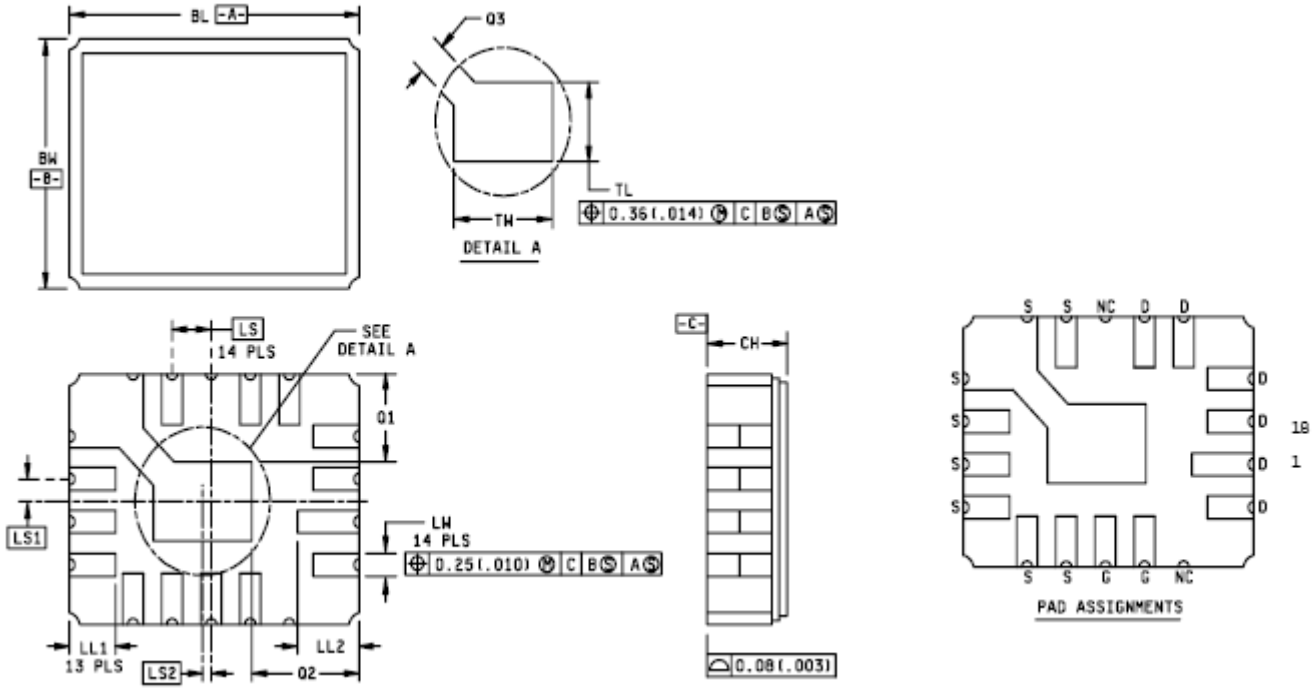

NOTES:
1 Dimensions are in inches.
2 Millimeters are given for general information only.
3 In accordance with ASME Y14.5M, diameters are equivalent to φx symbology.
4 Ceramic package only.

Ltr	Dimensions			
	Inches		Millimeters	
	Min	Max	Min	Max
BL	.345	.360	8.77	
BW	.280	.295	7.11	
CH	.095	.115	2.41	
LL1	.040	.055	1.02	
LL2	.055	.065	1.40	
LS	.050 BSC		1.27 BSC	
LS1	.025 BSC		0.635 BSC	
LS2	.008 BSC		0.203 BSC	
LW	.020	.030	0.51	0.76
Q1	.105 REF		2.67 REF	
Q2	.120 REF		3.05 REF	
Q3	.045	.055	1.14	1.40
TL	.070	.080	1.78	2.03
TW	.120	.130	3.05	3.30

*** FIGURE 2 -** Physical dimensions for LCC.