

P-CHANNEL MOSFET

Qualified per MIL-PRF-19500/564

DEVICES

2N6849 2N6849U

LEVELS

JAN
JANTX
JANTXV
JANS

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

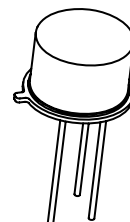
Parameters / Test Conditions	Symbol	Value	Unit
Drain – Source Voltage	V_{DS}	-100	Vdc
Gate – Source Voltage	V_{GS}	± 20	Vdc
Continuous Drain Current $T_C = +25^\circ\text{C}$	I_{D1}	-6.5	Adc
Continuous Drain Current $T_C = +100^\circ\text{C}$	I_{D2}	-4.1	Adc
Max. Power Dissipation	P_{tl}	25 ⁽¹⁾	W
Drain to Source On State Resistance	$R_{ds(on)}$	0.3 ⁽²⁾	Ω
Operating & Storage Temperature	T_{op}, T_{stg}	-55 to +150	$^\circ\text{C}$

Note: (1) Derated Linearly by 0.2 W/ $^\circ\text{C}$ for $T_C > +25^\circ\text{C}$

(2) $V_{GS} = -10\text{Vdc}$, $I_D = -4.1\text{A}$

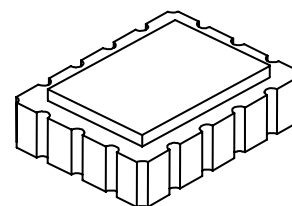
ELECTRICAL CHARACTERISTICS ($T_A = +25^\circ\text{C}$, unless otherwise noted)

Parameters / Test Conditions	Symbol	Min.	Max.	Unit
Drain-Source Breakdown Voltage $V_{GS} = 0\text{V}$, $I_D = -1\text{mA}$	$V_{(BR)DSS}$	-100		Vdc
Gate-Source Voltage (Threshold) $V_{DS} \geq V_{GS}$, $I_D = -0.25\text{mA}$ $V_{DS} \geq V_{GS}$, $I_D = -0.25\text{mA}$, $T_j = +125^\circ\text{C}$ $V_{DS} \geq V_{GS}$, $I_D = -0.25\text{mA}$, $T_j = -55^\circ\text{C}$	$V_{GS(th)1}$ $V_{GS(th)2}$ $V_{GS(th)3}$	-2.0 -1.0 -5.0	-4.0	Vdc
Gate Current $V_{GS} = \pm 20\text{V}$, $V_{DS} = 0\text{V}$ $V_{GS} = \pm 20\text{V}$, $V_{DS} = 0\text{V}$, $T_j = +125^\circ\text{C}$	I_{GSS1} I_{GSS2}		± 100 ± 200	nAdc
Drain Current $V_{GS} = 0\text{V}$, $V_{DS} = -80\text{V}$ $V_{GS} = 0\text{V}$, $V_{DS} = -80\text{V}$, $T_j = +125^\circ\text{C}$	I_{DSS1} I_{DSS2}		-25 -0.25	μAdc mAdc
Static Drain-Source On-State Resistance $V_{GS} = -10\text{V}$, $I_D = -4.1\text{A}$ pulsed $V_{GS} = -10\text{V}$, $I_D = -6.5\text{A}$ pulsed $T_j = -125^\circ\text{C}$ $V_{GS} = -10\text{V}$, $I_D = -4.1\text{A}$ pulsed	$r_{DS(on)1}$ $r_{DS(on)2}$ $r_{DS(on)3}$		0.3 0.32 0.54	Ω Ω Ω
Diode Forward Voltage $V_{GS} = 0\text{V}$, $I_D = -6.5\text{A}$ pulsed	V_{SD}		-4.3	Vdc



2N6849
TO-205AF
 (formerly TO-39)

SEE FIGURE 1



2N3849U
18 PIN LCC

SEE FIGURE 2



6 Lake Street, Lawrence, MA 01841
1-800-446-1158 / (978) 620-2600 / Fax: (978) 689-0803
Website: <http://www.microsemi.com>

TECHNICAL DATA SHEET

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DYNAMIC CHARACTERISTICS

Parameters / Test Conditions	Symbol	Min.	Max.	Unit
Gate Charge: On-State Gate Charge Gate to Source Charge Gate to Drain Charge	$Q_{g(on)}$ Q_{gs} Q_{gd}		34.8 6.8 23.1	nC

$V_{GS} = -10V$, $I_D = -6.5A$
 $V_{DS} = -50V$

SWITCHING CHARACTERISTICS

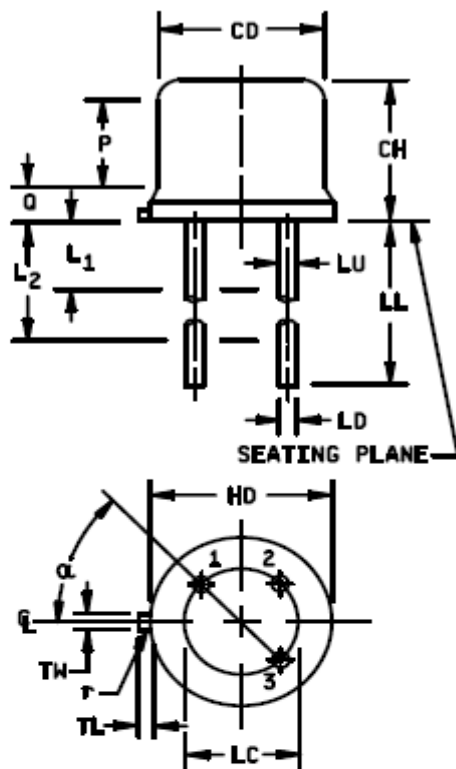
Parameters / Test Conditions	Symbol	Min.	Max.	Unit
Switching time tests: Turn-on delay time Rinse time Turn-off delay time Fall time	$t_{d(on)}$ t_r $t_{d(off)}$ t_f		60 140 140 140	ns

$I_D = -6.5A$, $V_{GS} = -10Vdc$,
Gate drive impedance = 7.5Ω ,
 $V_{DD} = -40Vdc$
 $di/dt \leq -100A/\mu s$, $V_{DD} \leq -50V$,
 $I_F = -6.5A$

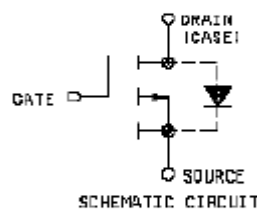
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Figure 1 – Case Outline and PIN Configuration for 2N6849



Ltr	Dimensions				Notes
	Inches		Millimeters		
	Min	Max	Min	Max	
CD	.305	.335	7.75	8.51	
CH	.160	.180	4.07	4.57	
HD	.335	.370	8.51	9.39	
LC	.200 TP		5.08 TP		6
LD	.016	.021	0.41	0.53	7, 8
LL	.500	.750	12.7	19.05	7, 8
LU	.016	.019	0.41	0.48	7, 8
L ₁		.050		1.27	7, 8
L ₂	.250		6.35		7, 8
P	.100		2.54		5
Q		.050		1.27	4
r		.010		0.25	9
TL	.029	.045	0.74	1.14	3
TW	.028	.034	0.72	0.86	2
α	45° TP		45° TP		6



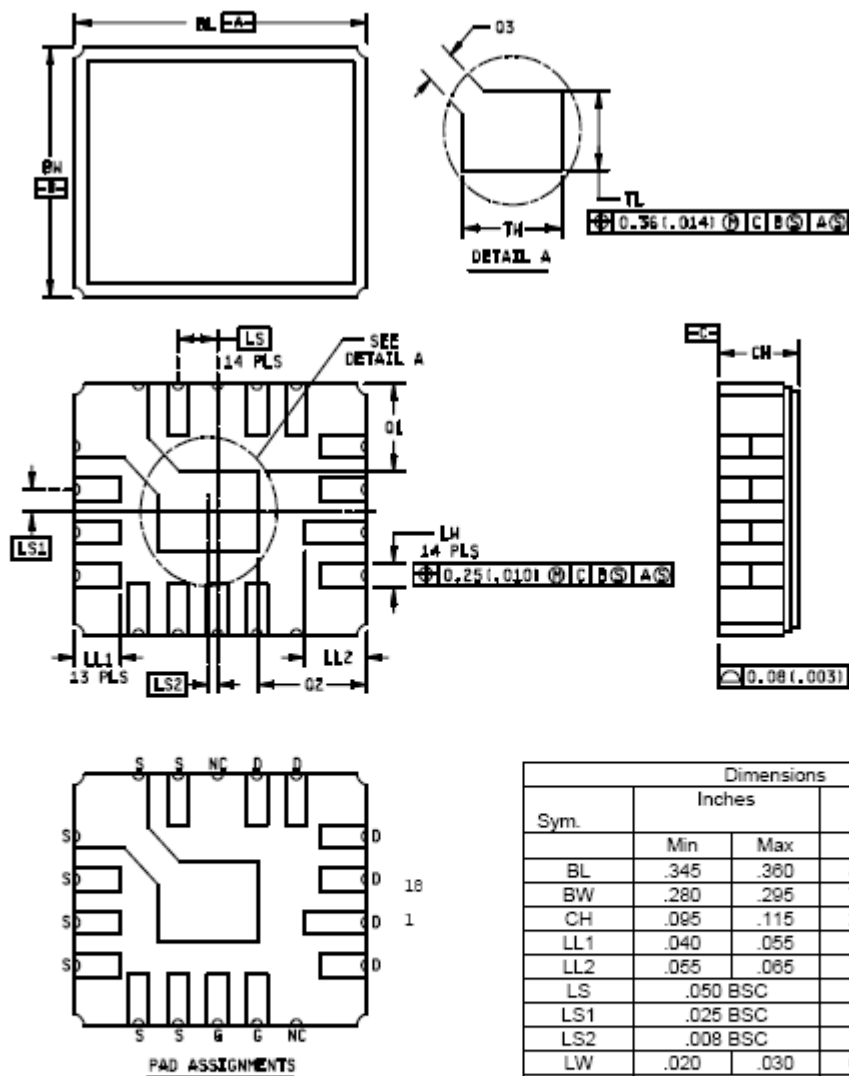
NOTES:

1. Dimensions are in inches. Millimeters are given for general information only.
2. Beyond radius (r) maximum, TW shall be held for a minimum length of .011 (0.28 mm).
3. Dimension TL 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 LL 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 ϕ x symbology.
12. Lead 1 = source, lead 2 = gate, lead 3 = drain.

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Figure 2 – Case Outline and PIN Configuration for 2N6849U



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 ϕ x symbology.