

## N-CHANNEL MOSFET

Qualified per MIL-PRF-19500/556

### DEVICES

**2N6782 2N6782U**

### LEVELS

**JAN  
 JANTX  
 JANTXV**

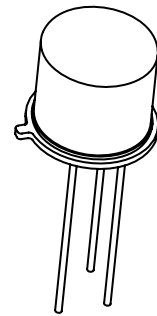
### ABSOLUTE MAXIMUM RATINGS ( $T_C = +25^\circ\text{C}$ unless otherwise noted)

Parameters / Test Conditions	Symbol	Value	Unit
Drain – Source Voltage	$V_{DS}$	100	Vdc
Gate – Source Voltage	$V_{GS}$	$\pm 20$	Vdc
Continuous Drain Current $T_C = +25^\circ\text{C}$	$I_{D1}$	3.5	Adc
Continuous Drain Current $T_C = +100^\circ\text{C}$	$I_{D2}$	2.25	Adc
Max. Power Dissipation	$P_{tl}$	15 <sup>(1)</sup>	W
Drain to Source On State Resistance	$R_{ds(on)}$	0.61 <sup>(2)</sup>	$\Omega$
Operating & Storage Temperature	$T_{op}, T_{stg}$	-55 to +150	$^\circ\text{C}$

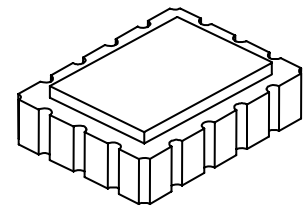
**Note:** (1) Derated Linearly by 0.12 W/ $^\circ\text{C}$  for  $T_C > +25^\circ\text{C}$   
 (2)  $V_{GS} = 10\text{Vdc}$ ,  $I_D = 3.5\text{A}$

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

Parameters / Test Conditions	Symbol	Min.	Max.	Unit
<b>OFF CHARACTERISTICS</b>				
Drain-Source Breakdown Voltage $V_{GS} = 0\text{V}$ , $I_D = 1\text{mA}$	$V_{(BR)DSS}$	100		Vdc
Gate-Source Voltage (Threshold) $V_{DS} \geq V_{GS}$ , $I_D = 0.25\text{mA}$	$V_{GS(th)1}$	2.0	4.0	Vdc
$V_{DS} \geq V_{GS}$ , $I_D = 0.25\text{mA}$ , $T_j = +125^\circ\text{C}$	$V_{GS(th)2}$	1.0		
$V_{DS} \geq V_{GS}$ , $I_D = 0.25\text{mA}$ , $T_j = -55^\circ\text{C}$	$V_{GS(th)3}$		5.0	
Gate Current $V_{GS} = \pm 20\text{V}$ , $V_{DS} = 0\text{V}$	$I_{GSS1}$		$\pm 100$	nAde
$V_{GS} = \pm 20\text{V}$ , $V_{DS} = 0\text{V}$ , $T_j = +125^\circ\text{C}$	$I_{GSS2}$		$\pm 200$	
Drain Current $V_{GS} = 0\text{V}$ , $V_{DS} = 80\text{V}$	$I_{DSS1}$		25	$\mu\text{Ade}$
$V_{GS} = 0\text{V}$ , $V_{DS} = 80\text{V}$ , $T_j = +125^\circ\text{C}$	$I_{DSS2}$		0.25	mAde
Static Drain-Source On-State Resistance $V_{GS} = 10\text{V}$ , $I_D = 2.25\text{A}$ pulsed	$r_{DS(on)1}$		0.60	$\Omega$
$V_{GS} = 10\text{V}$ , $I_D = 3.5\text{A}$ pulsed	$r_{DS(on)2}$		0.61	$\Omega$
$T_j = +125^\circ\text{C}$				
$V_{GS} = 10\text{V}$ , $I_D = 2.25\text{A}$ pulsed	$r_{DS(on)3}$		1.08	$\Omega$
Diode Forward Voltage $V_{GS} = 0\text{V}$ , $I_D = 3.5\text{A}$ pulsed	$V_{SD}$		1.5	Vdc



**TO-205AF**  
(formerly TO-39)



**U – 18 LCC**



# TECHNICAL DATA SHEET

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

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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	$Q_{g(on)}$ $Q_{gs}$ $Q_{gd}$		8.1 1.7 4.5	nC

$V_{GS} = 10V, I_D = 3.5A$   
 $V_{DS} = 50V$

### SWITCHING CHARACTERISTICS

Parameters / Test Conditions	Symbol	Min.	Max.	Unit
Switching time tests: Turn-on delay time Rinse time Turn-off delay time Fall time	$t_{d(on)}$ $t_r$ $t_{d(off)}$ $t_f$		15 25 25 20	ns
Diode Reverse Recovery Time	$t_{rr}$		180	ns

$I_D = 3.5A, V_{GS} = 10Vdc,$   
 Gate drive impedance =  $7.5\Omega,$   
 $V_{DD} = 50Vdc$

$di/dt \leq 100A/\mu s, V_{DD} \leq 50V,$   
 $I_F = 3.5A$