

## N-CHANNEL MOSFET Qualified per MIL-PRF-19500/543

### DEVICES

**2N6770      2N6770T1**

### LEVELS

**JAN  
 JANTX  
 JANTXV**

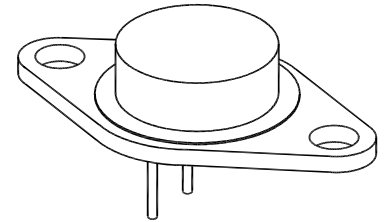
### ABSOLUTE MAXIMUM RATINGS ( $T_C = +25^\circ\text{C}$ unless otherwise noted)

Parameters / Test Conditions	Symbol	Value	Unit
Drain – Source Voltage	$V_{DS}$	500	Vdc
Gate – Source Voltage	$V_{GS}$	$\pm 20$	Vdc
Continuous Drain Current $T_C = +25^\circ\text{C}$	$I_{D1}$	12	Adc
Continuous Drain Current $T_C = +100^\circ\text{C}$	$I_{D2}$	7.75	Adc
Max. Power Dissipation	$P_{tl}$	150 <sup>(1)</sup>	W
Drain to Source On State Resistance	$R_{ds(on)}$	0.4 <sup>(2)</sup>	$\Omega$
Operating & Storage Temperature	$T_{op}, T_{stg}$	-55 to +150	$^\circ\text{C}$

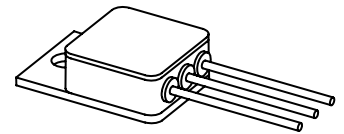
**Note:** (1) Derated Linearly by 1.2 W/ $^\circ\text{C}$  for  $T_C > +25^\circ\text{C}$   
 (2)  $V_{GS} = 10\text{Vdc}$ ,  $I_D = 7.75\text{A}$

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

Parameters / Test Conditions	Symbol	Min.	Max.	Unit
Drain-Source Breakdown Voltage $V_{GS} = 0\text{V}$ , $I_D = 1\text{mAdc}$	$V_{(BR)DSS}$	500		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	4.0 5.0	Vdc
Gate Current $V_{GS} = \pm 20\text{V}$ , $V_{DS} = 0\text{V}$ $V_{GS} = \pm 20\text{V}$ , $V_{DS} = 0\text{V}$ , $T_j = +125^\circ\text{C}$	$I_{GSS1}$ $I_{GSS2}$		$\pm 100$ $\pm 200$	nAdc
Drain Current $V_{GS} = 0\text{V}$ , $V_{DS} = 400\text{V}$ $V_{GS} = 0\text{V}$ , $V_{DS} = 400\text{V}$ , $T_j = +125^\circ\text{C}$	$I_{DSS1}$ $I_{DSS2}$		25 0.25	$\mu\text{Adc}$ mAdc
Static Drain-Source On-State Resistance $V_{GS} = 10\text{V}$ , $I_D = 7.75\text{A}$ pulsed $V_{GS} = 10\text{V}$ , $I_D = 12\text{A}$ pulsed $T_j = +125^\circ\text{C}$ $V_{GS} = 10\text{V}$ , $I_D = 7.75\text{A}$ pulsed	$r_{DS(on)1}$ $r_{DS(on)2}$ $r_{DS(on)3}$		0.4 0.5 0.88	$\Omega$ $\Omega$ $\Omega$
Diode Forward Voltage $V_{GS} = 0\text{V}$ , $I_D = 12\text{A}$ pulsed	$V_{SD}$		1.7	Vdc



**TO-204AA  
 (TO-3)  
 2N6770**



**TO-254AA  
 2N6770T1**



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

## N-CHANNEL MOSFET Qualified per MIL-PRF-19500/543

### DYNAMIC CHARACTERISTICS

Parameters / Test Conditions	Symbol	Min.	Max.	Unit
Gate Charge:				
On-State Gate Charge	$Q_{g(on)}$		120	nC
Gate to Source Charge	$Q_{gs}$		19	
Gate to Drain Charge	$Q_{gd}$		70	
$V_{GS} = 10V, I_D = 12A$ $V_{DS} = 50V$				

### SWITCHING CHARACTERISTICS

Parameters / Test Conditions	Symbol	Min.	Max.	Unit
Switching time tests:				
Turn-on delay time	$t_{d(on)}$		35	ns
Rinse time	$t_r$		190	
Turn-off delay time	$t_{d(off)}$		170	
Fall time	$t_f$		130	
Diode Reverse Recovery Time	$t_{rr}$		1600	ns
$di/dt \leq 100A/\mu s, V_{DD} \leq 30V,$ $I_F = 12A$				