

### FEATURES

- Available as "HR" (high reliability) screened per MIL-PRF-19500, JANTX level. Add "HR" suffix to base part number.
- Available as non-RoHS (Sn/Pb plating), standard, and as RoHS by adding "-PBF" suffix.

### MAXIMUM RATINGS

Ratings	Symbol	2N1770	2N1771	2N1772	2N1773	2N1774	Units
Repetitive peak off-state voltage	$V_{DRM}$	25	50	100	150	200	Volts
Repetitive peak reverse voltage	$V_{RRM}$	25	50	100	150	200	Volts
Non-repetitive peak reverse voltage	$V_{RSM}$	40	75	150	225	300	Volts

Ratings	Symbol	2N1775	2N1776	2N1777	2N1778	2N2619	Units
Repetitive peak off-state voltage	$V_{DRM}$	250	300	400	500	600	Volts
Repetitive peak reverse voltage	$V_{RRM}$	250	300	400	500	600	Volts
Non-repetitive peak reverse voltage	$V_{RSM}$	350	400	500	600	720	Volts

Ratings	Symbol	2N1770-2N1778, 2N2619	Units
RMS on-state current	$I_{T(RMS)}$	7.4	Amps
Average on-state current (nominal) $T_c = 60^\circ\text{C}$	$I_{T(AV)}$	4.7	Amps
Peak one-cycle surge (non-repetitive) on-state current (60 Hz)	$I_{TSM}$	60	Amps
Peak one-cycle surge (non-repetitive) on-state current (50 Hz)	$I_{TSM}$	52	Amps
Critical rate of rise of on-state current (repetitive)	$di/dt$	40	A/ $\mu\text{s}$
$I^2t$ (for fusing), 8.3ms	$I^2t$	15	A <sup>2</sup> sec
Peak gate power dissipation	$P_{GM}$	5	Watts
Average gate power dissipation	$P_{G(AV)}$	0.5	Watts
Peak forward gate voltage	$V_{FGM}$	10	Volts
Peak forward gate current	$I_{FGM}$	2	Amps
Peak reverse gate voltage	$V_{RGM}$	10	Volts
Storage temperature	$T_{stg}$	-65 to +150	$^\circ\text{C}$
Operating temperature	$T_j$	-65 to +125	$^\circ\text{C}$
Mounting torque	-	15	Inch-pounds
Mounting torque	-	17.5	kg-cm

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

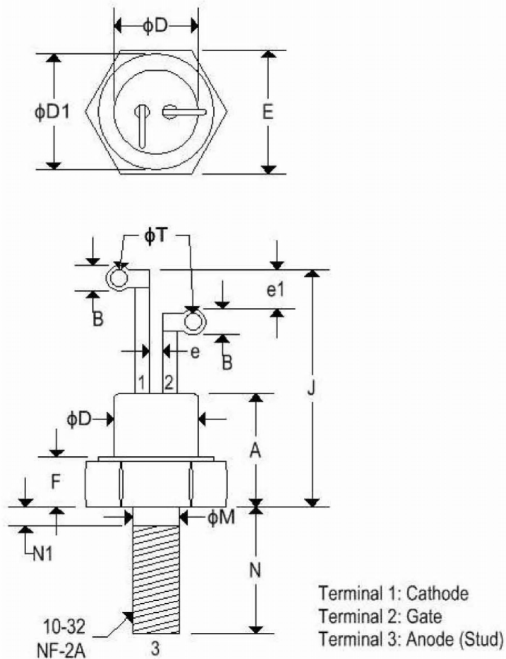
Characteristics	Symbol	Test Conditions	2N1770	2N1771	2N1772	2N1773	2N1774	Units
Voltage-Blocking state maximum Forward leakage, peak	$I_{DRM}$	$T_j = 125^\circ\text{C}, V_D = V_{DRM}$	9.0	9.0	9.0	8.0	6.0	mA
Reverse leakage, peak	$I_{RRM}$	$T_j = 125^\circ\text{C}, V_R = V_{RRM}$	9.0	9.0	9.0	8.0	6.0	mA

Characteristics	Symbol	Test Conditions	2N1775	2N1776	2N1777	2N1778	2N2619	Units
Voltage-Blocking state maximum Forward leakage, peak	$I_{DRM}$	$T_j = 125^\circ\text{C}, V_D = V_{DRM}$	5.0	4.0	2.0	2.0	2.0	mA
Reverse leakage, peak	$I_{RRM}$	$T_j = 125^\circ\text{C}, V_R = V_{RRM}$	5.0	4.0	2.0	2.0	2.0	mA

Characteristics	Symbol	Test Conditions	2N1770-2N1778, 2N2619			Units
			Min	Typ	Max	
<b>Current- Conducting state</b>						
Holding current	$I_H$	$V_D = 6V, T_J = 25^\circ C$	-	8.0	-	mA
Peak on state voltage	$V_{TM}$	$T_J = 25^\circ C, I_{TM} = 15A$	-	1.6	1.85	Volts
<b>Switching</b>						
Turn-off time	$t_q$	$T_J = 125^\circ C$ Reapplied $dv/dt = 20V/\mu s$	-	15	-	$\mu s$
Turn-on time	$t_{on}$	Gate supply: 7V, 20 $\Omega$ 0.1 $\mu s$ rise time	-	1.0	-	$\mu s$
Typical critical $dv/dt$ exponential to $V_{DRM}$	$dv/dt$	-	-	20	-	V/ $\mu s$
<b>Thermal</b>						
Maximum thermal resistance, Junction to case	$R_{th(j-c)}$	-	-	1.5	3.1	$^\circ C/Watt$
<b>Gate- Maximum parameters</b>						
Gate current to trigger	$I_{GT}$	$V_D = 12V, R_L = 250\Omega, T_J = -65^\circ C$ $V_D = 12V, R_L = 250\Omega, T_J = 125^\circ C$ $V_D = 12V, R_L = 250\Omega, T_J = 25^\circ C$	-	20 4 10	30 8 15	mA
Gate voltage to trigger	$V_{GT}$	$V_D = 12V, R_L = 250\Omega, T_J = 25^\circ C$	-	1.3	2.0	Volts
Non-triggering gate voltage	$V_{GD}$	$V_D = V_{DRM}, R_L = 250\Omega, T_J = 125^\circ C$	0.3	0.7	-	Volts

### MECHANICAL CHARACTERISTICS

<b>Case:</b>	TO-64
<b>Marking:</b>	Alpha-numeric
<b>Polarity</b>	Anode is stud



	TO-64			
	Inches		Millimeters	
	Min	Max	Min	Max
A	0.300	0.410	7.620	10.414
B	0.080	0.140	2.030	3.556
$\Phi D$	-	0.424	-	10.770
$\Phi D_1$	0.400	-	10.160	-
E	0.424	0.437	10.770	11.100
e	0.013	-	0.330	-
$e_1$	0.060	-	1.520	-
F	0.060	0.175	1.520	4.450
J	0.700	0.855	17.780	21.720
$\Phi M$	0.163	0.189	4.140	4.800
N	0.400	0.453	10.160	11.510
$N_1$	-	0.078	-	1.980
$\Phi T$	0.040	0.075	1.020	1.910

