

## N-Channel Power MOSFET (200V/9A)

### GENERAL DESCRIPTION

This advanced high voltage MOSFET is designed to stand high energy in the avalanche mode and switch efficiently.

This new high energy device also offers a drain

Desighed for high voltage, high speed power supplies , converters, power motor controls and bridge circuits power supplies

### FEATURE

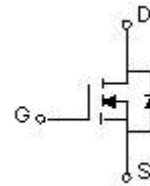
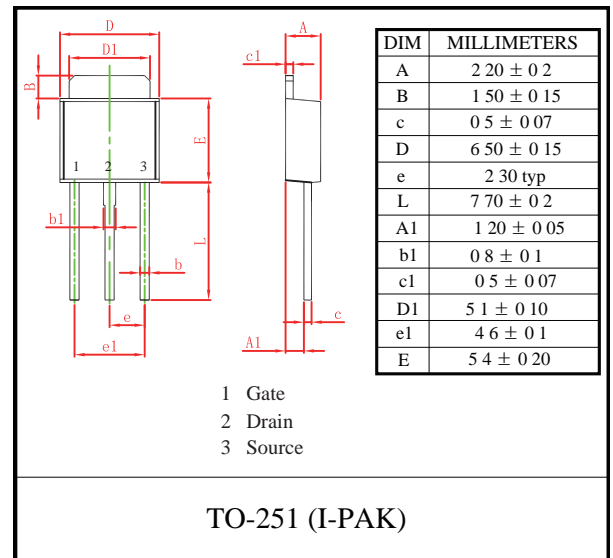
- High density cell design for ultra low  $R_{dson}$
- Fully characterized avalanche voltage and current
- Good stability and uniformity with high  $E_{AS}$
- Excellent package for good heat dissipation
- Special process technology for high ESD capability

### APPLICATION

- Power switching application
- Hard switched and high frequency circuits
- Uninterruptible power supply

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

Symbol	Rating	Unit
$V_{DSS}$	200	V
$I_D (T_c=25^\circ\text{C})$	9	A
$I_D (T_c=100^\circ\text{C})$	5.7	A
$I_{DM}$	36	A
$V_{GSS}$	$\pm 30$	V
$I_{AR}$	9	A
$E_{AS}$	160	mJ
$E_{AR}$	4.6	mJ
dv/dt	5.5	V/ns
$P_D (T_A=25^\circ\text{C})$	2.5	W
$P_D (T_C=25^\circ\text{C})$	46	W
$R_{QJC}$	2.7	$^\circ\text{C}/\text{W}$
$R_{QJA}$	110	$^\circ\text{C}/\text{W}$
$T_J, T_{STG}$	-55 to 150	$^\circ\text{C}$





# BRI630

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

Symbol	Test Conditions	Min	Typ	Max	Unit
$BV_{DSS}$	$V_{GS}=0V$ $I_D=250\ \mu A$	200			V
$\Delta BV_{DSS}/\Delta T_J$	$I_D=250\ \mu A$		0.2		V/ $^\circ\text{C}$
$I_{DSS}$	$V_{DS}=200V$ $V_{GS}=0V$			1	$\mu A$
	$V_{DS}=160V$ $T_C=125^\circ\text{C}$			10	$\mu A$
$I_{GSS}$	$V_{GS}=\pm 25V$ $V_{DS}=0V$			$\pm 0.1$	$\mu A$
$V_{GS(th)}$	$V_{DS}=V_{GS}$ $I_D=250\ \mu A$	2		4	V
$R_{DS(on)}$	$V_{GS}=10V$ $I_D=4.5A$		0.34	0.4	$\Omega$
$g_{FS}$	$V_{DS}=40V$ $I_D=4.5A$		4.2		S
$C_{iss}$	$V_{DS}=25V$ $V_{GS}=0V$ $f=1\text{MHz}$		420	550	pF
$C_{oss}$			85	110	
$C_{rSS}$			35	45	
$t_{d(on)}$	$V_{DD}=100V$ $I_D=9A$ $R_G=25\ \Omega$		8	30	ns
$t_r$			75	160	
$t_{d(off)}$			47	110	
$t_f$			64	140	
$Q_g$	$V_{DS}=160V$ $I_D=9A$ $V_{GS}=10V$		19	25	nC
$Q_{gs}$			3		nC
$Q_{gd}$			9.5		nC
$I_S$				7	A
$I_{SM}$				28	A
$V_{SD}$	$V_{GS}=0V$ $I_S=9A$			1.5	V
$t_{rr}$	$V_{GS}=0V$ $I_S=9A$				
$Q_{rr}$	$dI_F/dt=100A/\ \mu s$		0.68		$\mu C$

## Typical Electrical and Thermal Characteristics (Curves)

