



## IXTP2N95, IXTP2N100, IXTM2N95, IXTM2N100

2 AMPS, 950-1000 V, 6.0Ω/7.0Ω

T-39-11

## MAXIMUM RATINGS

Parameter	Sym.	IXTP2N95 IXTM2N95	IXTP2N100 IXTM2N100	Unit
Drain-Source Voltage (1)	$V_{DS}$	950	1000	$V_{dc}$
Drain-Gate Voltage ( $R_{GS}=1.0\text{ M}\Omega$ ) (1)	$V_{DGR}$	950	1000	$V_{dc}$
Gate-Source Voltage Continuous	$V_{GS}$		$\pm 20$	$V_{dc}$
Gate-Source Voltage Transient	$V_{GSM}$		$\pm 30$	V
Drain Current Continuous ( $T_C=25^\circ\text{C}$ )	$I_D$		2	$A_{dc}$
Drain Current Pulsed (3)	$I_{DM}$		8	A
Total Power Dissipation	$P_D$		75	W
Power Dissipation Derating $>25^\circ\text{C}$			0.6	W/ $^\circ\text{C}$
Operating and Storage Temperature	$T_J$ & $T_{stg}$		$-65$ to $+150$	$^\circ\text{C}$
Max. Lead Temp. for Soldering	$T_L$		300 (1.6mm from case for 10 sec.)	$^\circ\text{C}$

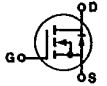
ELECTRICAL CHARACTERISTICS  $T_C=25^\circ\text{C}$  unless otherwise specified

Parameter	Type	Min.	Typ.	Max.	Units	Test Conditions
$BV_{DSS}$ Drain-Source Breakdown Voltage	2N95, 95A	950	-	-	V	$V_{GS}=0V$
	2N100, 100A	1000	-	-	V	$I_D=250\mu A$
$V_{GS(th)}$ Gate Threshold Voltage	ALL	2.0	-	4.5	V	$V_{DS}=V_{GS}$ , $I_D=250\mu A$
$I_{GSS}$ Gate-Source Leakage Forward	ALL	-	-	100	nA	$V_{GS}=20V$
$I_{GSS}$ Gate-Source Leakage Reverse	ALL	-	-	100	nA	$V_{GS}=-20V$
$I_{DSS}$ Zero Gate Voltage Drain Current	ALL	-	-	200	$\mu A$	$V_{DS}=\text{Max. Rating}\times 0.8$ , $V_{GS}=0V$
		-	-	1000	$\mu A$	$V_{DS}=\text{Max. Rating}\times 0.8$ , $V_{GS}=0V$ , $T_C=125^\circ\text{C}$
$R_{DS(on)}$ Static Drain-Source On-State Resistance (2)	2N95A, 100A	-	-	6.0	$\Omega$	$V_{GS}=10V$ , $I_D=1.0A$
	2N95, 100	-	-	7.0	$\Omega$	
$G_s$ Forward Transconductance (2)	ALL	1.5	2.2	-	S	$V_{DS}\geq 15V$ , $I_D=1.0A$
$C_{iss}$ Input Capacitance	ALL	-	720	900	pF	$V_{GS}=0V$ , $V_{DS}=25V$ , $f=1.0\text{ MHz}$
$C_{oss}$ Output Capacitance	ALL	-	60	75	pF	$V_{DS}=0.5 BV_{DSS}$ , $I_D=1.0A$ , $Z_o=20\Omega$
$C_{rss}$ Reverse Transfer Capacitance	ALL	-	15	25	pF	
$t_{d(on)}$ Turn-On Delay Time	ALL	-	15	30	ns	
$t_r$ Rise Time	ALL	-	15	35	ns	(MOSFET switching times are essentially independent of operating temperature. See Fig. 3, page 22 for test circuit.)
$t_{d(off)}$ Turn-Off Delay Time	ALL	-	60	80	ns	
$t_f$ Fall Time	ALL	-	30	55	ns	
$Q_g$ Total Gate Charge	ALL	-	-	40	nC	$V_{GS}=10V$ , $I_D=2.0A$ , $V_{DS}=0.8\text{ Max. Rating}$ . (Gate charge is essentially independent of operating temperature. See Fig. 4, page 22 for test circuit.)
$Q_{gs}$ Gate-Source Charge	ALL	-	-	10	nC	
$Q_{gd}$ Gate-Drain ("Miller") Charge	ALL	-	-	15	nC	
$W_{DSR}$ Unclamped Drain-to-Source Avalanche Energy	2N95AR	75	-	-	mJ	See Fig. 5, page 22 for test circuit.
	2N100AR					

## THERMAL RESISTANCE

Parameter	Type	Min.	Typ.	Max.	Units	Test Conditions
$R_{thJC}$ Junction-to-Case	ALL	-	-	1.6	$^\circ\text{C/W}$	
$R_{thJA}$ Junction-to-Ambient TO-204	IXTM	-	-	30.0	$^\circ\text{C/W}$	Free Air Operation
$R_{thJA}$ Junction-to-Ambient TO-220	IXTP	-	-	80.0	$^\circ\text{C/W}$	Free Air Operation

## SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS

Parameter	Type	Min.	Typ.	Max.	Units	Test Conditions
$I_S$ Continuous Source Current (Body Diode)	ALL	-	-	2.0	A	Modified MOSFET symbol showing the integral reverse P-N junction rectifier. 
$I_{SM}$ Pulse Source Current (Body Diode) (1)	ALL	-	-	8.0	A	
$V_{SD}$ Diode Forward Voltage (2)	ALL	-	-	1.5	V	$T_C=25^\circ\text{C}$ , $I_f=0A$ , $V_{GS}=0V$
$t_{rr}$ Reverse Recovery Time	ALL	-	800	-	ns	$I_f=2.0A$ , $di/dt=100A/\mu s$

(1)  $T_J=25^\circ\text{C}$  to  $150^\circ\text{C}$ (2) Pulse test: Pulse width  $\leq 300\mu s$ , duty cycle  $\leq 2\%$ 

(3) Repetitive rating: Pulse width limited by max. junction temperature.