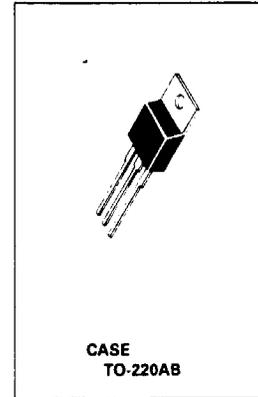


MTP15N05
MTP15N06



MAXIMUM RATINGS

Rating	Symbol	MTP		Unit
		15N05	15N06	
Drain-Source Voltage	V _{DSS}	50	60	V _{dc}
Drain-Gate Voltage (R _{GS} = 1 MΩ)	V _{DGR}	50	60	V _{dc}
Gate-Source Voltage — Continuous — Non-repetitive (t _p ≤ 50 μs)	V _{GS}	= 20		V _{dc}
	V _{GSM}	= 40		V _{pk}
Drain Current — Continuous — Pulsed	I _D	15		A _{dc}
	I _{DM}	40		
Total Power Dissipation (at T _C = 25°C Derate above 25°C)	P _D	75		Watts
		0.6		W/°C
Operating and Storage Temperature Range	T _J , T _{stg}	-65 to 150		°C

THERMAL CHARACTERISTICS

Thermal Resistance Junction to Case	R _{θJC}	1.67	°C/W
	Junction to Ambient TO-220	R _{θJA}	
Maximum Lead Temperature for Soldering Purposes, 1/8" from case for 5 seconds	T _L	275	°C

ELECTRICAL CHARACTERISTICS (T_C = 25°C unless otherwise noted)

Characteristic	Symbol	Min	Max	Unit
----------------	--------	-----	-----	------

OFF CHARACTERISTICS

Drain-Source Breakdown Voltage (V _{GS} = 0, I _D = 0.25 mA)	MTP15N05 MTP15N06	V _{(BR)DSS}	50 60	— —	V _{dc}
Zero Gate Voltage Drain Current (V _{DS} = Rated V _{DSS} , V _{GS} = 0) (V _{DS} = Rated V _{DSS} , V _{GS} = 0, T _J = 125°C)		I _{DSS}	—	10 100	μA _{dc}
Gate-Body Leakage Current, Forward (V _{GSF} = 20 V _{dc} , V _{DS} = 0)	I _{GSSF}	—	100	nA _{dc}	
Gate-Body Leakage Current, Reverse (V _{GSR} = 20 V _{dc} , V _{DS} = 0)	I _{GSSR}	—	100	nA _{dc}	

ON CHARACTERISTICS*

Gate Threshold Voltage (V _{DS} = V _{GS} , I _D = 1 mA) T _J = 100°C	V _{GS(th)}	2 1.5	4.5 4	V _{dc}
Static Drain-Source On-Resistance (V _{GS} = 10 V _{dc} , I _D = 7.5 A _{dc})	r _{DS(on)}	—	0.16	Ohm
Drain-Source On-Voltage (V _{GS} = 10 V) (I _D = 15 A _{dc}) (I _D = 7.5 A _{dc} , T _J = 100°C)	V _{DS(on)}	—	2.9 2.4	V _{dc}
Forward Transconductance (V _{DS} = 15 V, I _D = 7.5 A)	g _{FS}	3.5	—	mhos

DYNAMIC CHARACTERISTICS

Input Capacitance	(V _{DS} = 25 V, V _{GS} = 0, f = 1 MHz) See Figure 11	C _{iss}	—	700	pF
Output Capacitance		C _{oss}	—	400	
Reverse Transfer Capacitance		C _{rss}	—	200	

SWITCHING CHARACTERISTICS* (T_J = 100°C)

Turn-On Delay Time	(V _{DD} = 25 V, I _D = 0.5 Rated I _D R _{gen} = 50 ohms) See Figures 9, 13 and 14	t _{d(on)}	—	50	ns
Rise Time		t _r	—	150	
Turn-Off Delay Time		t _{d(off)}	—	200	
Fall Time		t _f	—	100	
Total Gate Charge	(V _{DS} = 0.8 Rated V _{DSS} , I _D = Rated I _D , V _{GS} = 10 V) See Figure 12	Q _g	17 (Typ)	35	nC
Gate-Source Charge		Q _{gs}	8 (Typ)	—	
Gate-Drain Charge		Q _{gd}	9 (Typ)	—	

SOURCE DRAIN DIODE CHARACTERISTICS*

Forward On-Voltage	(I _S = Rated I _D V _{GS} = 0)	V _{SD}	1.8 (Typ)	2.5	V _{dc}
Forward Turn-On Time		t _{on}	Limited by stray inductance		
Reverse Recovery Time		t _{rr}	320 (Typ)	—	ns

INTERNAL PACKAGE INDUCTANCE

Internal Drain Inductance (Measured from the contact screw on tab to center of die) (Measured from the drain lead 0.25" from package to center of die)	L _d	3.5 (Typ) 4.5 (Typ)	—	nH
	Internal Source Inductance (Measured from the source lead 0.25" from package to source bond pad.)	L _s	7.5 (Typ)	—

