

TP2010L, TP2410L

P-Channel Enhancement-Mode MOS Transistors



T-37-25

PRODUCT SUMMARY

PART NUMBER	$V_{(BR)DSS}$ (V)	$r_{DS(ON)}$ (Ω)	I_D (A)
TP2010L	-200	10	-0.18
TP2410L	-240	10	-0.18

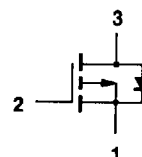
Performance Curves: VPDV24

TO-92 (TO-226AA)

BOTTOM VIEW



- 1 SOURCE
2 GATE
3 DRAIN



ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$ Unless Otherwise Noted)

PARAMETERS/TEST CONDITIONS	SYMBOL	LIMITS		UNITS
		TP2010L	TP2410L	
Drain-Source Voltage	V_{DS}	-200	-240	V
Gate-Source Voltage	V_{GS}	± 20	± 20	
Continuous Drain Current	$T_A = 25^\circ\text{C}$	-0.18	-0.18	A
	$T_A = 100^\circ\text{C}$	-0.11	-0.11	
Pulsed Drain Current ¹	I_{DM}	-0.72	-0.72	
Maximum Power Dissipation	$T_A = 25^\circ\text{C}$	0.80	0.80	W
	$T_A = 100^\circ\text{C}$	0.32	0.32	
Operating Junction & Storage Temperature Range	T_J, T_{stg}	-55 to 150		$^\circ\text{C}$
Lead Temperature ($1/16"$ from case for 10 sec.)	T_L	300		

THERMAL RESISTANCE RATINGS

THERMAL RESISTANCE	SYMBOL	LIMITS	UNITS
Junction-to-Ambient	R_{thJA}	156	K/W

¹Pulse width limited by maximum junction temperature.



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SPECIFICATIONS ^a				LIMITS			
PARAMETER	SYMBOL	TEST CONDITIONS		TYP ^b	MIN	MAX	UNIT
STATIC							
Drain-Source Breakdown Voltage	V _{(BR)DSS}	V _{GS} = 0 V	TP2010L	-220	-200		V
		I _D = -10 μA	TP2410L	-255	-240		
Gate Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = -1 mA		-1.9	-1	-2.4	
Gate-Body Leakage	I _{GSS}	V _{DS} = 0 V, V _{GS} = ±20 V				±10	nA
		T _J = 125°C				±50	
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = 0.8 x V _{(BR)DSS} , V _{GS} = 0 V				-1	μA
		T _J = 125°C				-100	
On-State Drain Current ^c	I _{D(ON)}	V _{DS} = -10 V, V _{GS} = -4.5 V		-300	-100		mA
Drain-Source On-Resistance ^c	r _{DS(ON)}	V _{GS} = -4.5 V, I _D = -100 mA		8.5		10	Ω
		T _J = 125°C		15.5		20	
Forward Transconductance ^c	g _{FS}	V _{DS} = -10 V, I _D = -100 mA		175	125		mS
DYNAMIC							
Input Capacitance	C _{iss}	V _{GS} = 0 V, V _{DS} = -25 V, f = 1 MHz		90		110	pF
Output Capacitance	C _{oss}			30		50	
Reverse Transfer Capacitance	C _{rss}			10		15	
SWITCHING							
Turn-On Time	t _{ON}	V _{DD} = -25 V, R _L = 250 Ω, I _D = -100 mA V _{GEN} = -10 V, R _G = 25 Ω		25		45	ns
Turn-Off Time	t _{OFF}	(Switching time is essentially independent of operating temperature)		90		130	

NOTES

a. $T_A = 25^\circ\text{C}$ unless otherwise noted.

b. For design aid only, not subject to production testing.

c. Pulse test. Pulse Width $\leq 300\text{ }\mu\text{sec}$, Duty Cycle $\leq 2\%$