

## TP2010L, TP2410L

P-Channel Enhancement-Mode  
MOS Transistors

T-37-25

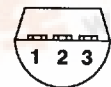
## PRODUCT SUMMARY

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

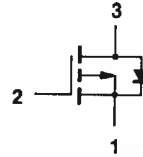
Performance Curves: VPDV24

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	$V_{GS}$	$\pm 20$	$\pm 20$	
Continuous Drain Current	$I_D$	$T_A = 25^\circ\text{C}$	-0.18	A
		$T_A = 100^\circ\text{C}$	-0.11	
Pulsed Drain Current <sup>1</sup>	$I_{DM}$	-0.72	-0.72	
Maximum Power Dissipation	$P_D$	$T_A = 25^\circ\text{C}$	0.80	W
		$T_A = 100^\circ\text{C}$	0.32	
Operating Junction & Storage Temperature Range	$T_J, T_{stg}$	-55 to 150		$^\circ\text{C}$
Lead Temperature ( <sup>1</sup> / <sub>16</sub> " from case for 10 sec.)	$T_L$	300		

## THERMAL RESISTANCE RATINGS

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

<sup>1</sup>Pulse width limited by maximum junction temperature.



# TP2010L, TP2410L

SPECIFICATIONS <sup>a</sup>				LIMITS			
PARAMETER	SYMBOL	TEST CONDITIONS	TYP <sup>b</sup>	MIN	MAX	UNIT	
<b>STATIC</b>							
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS} = 0\text{ V}$	TP2010L	-220	-200		V
		$I_D = -10\ \mu\text{A}$	TP2410L	-255	-240		
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = -1\text{ mA}$	-1.9	-1	-2.4		
Gate-Body Leakage	$I_{GSS}$	$V_{DS} = 0\text{ V}, V_{GS} = \pm 20\text{ V}$			$\pm 10$		nA
		$T_J = 125^\circ\text{C}$			$\pm 50$		
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS} = 0.8 \times V_{(BR)DSS}, V_{GS} = 0\text{ V}$			-1		$\mu\text{A}$
		$T_J = 125^\circ\text{C}$			-100		
On-State Drain Current <sup>c</sup>	$I_{D(ON)}$	$V_{DS} = -10\text{ V}, V_{GS} = -4.5\text{ V}$	-300	-100			mA
Drain-Source On-Resistance <sup>c</sup>	$r_{DS(ON)}$	$V_{GS} = -4.5\text{ V}, I_D = -100\text{ mA}$	8.5		10		$\Omega$
		$T_J = 125^\circ\text{C}$	15.5		20		
Forward Transconductance <sup>c</sup>	$g_{FS}$	$V_{DS} = -10\text{ V}, I_D = -100\text{ mA}$	175	125			mS
<b>DYNAMIC</b>							
Input Capacitance	$C_{iss}$	$V_{GS} = 0\text{ V}, V_{DS} = -25\text{ V}, f = 1\text{ MHz}$	90		110		pF
Output Capacitance	$C_{oss}$		30		50		
Reverse Transfer Capacitance	$C_{rss}$		10		15		
<b>SWITCHING</b>							
Turn-On Time	$t_{ON}$	$V_{DD} = -25\text{ V}, R_L = 250\ \Omega, I_D = -100\text{ mA}$ $V_{GEN} = -10\text{ V}, R_G = 25\ \Omega$	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  $\leq 300\ \mu\text{sec}$ , Duty Cycle  $\leq 2\%$