TN2410L, VN2406/2410 Series

N-Channel Enhancement-Mode MOSFET Transistors

TN2410L VN2406D VN2410L
VN2406L VN2410M
VN2406M

Product Summary

Part Number	$V_{(BR)DSS}$ Min (V)	$r_{DS(on)}$ Max (Ω)	$V_{GS(th)}$ (V)	I_D (A)
TN2410L	240	10 @ V_{GS} = 4.5 V	0.5 to 1.8	0.18
VN2406D		6 @ V_{GS} = 10 V	0.8 to 2	1.12
VN2406L		6 @ V_{GS} = 10 V	0.8 to 2	0.18
VN2406M		6 @ V_{GS} = 10 V	0.8 to 2	0.19
VN2410L		10 @ V_{GS} = 10 V	0.8 to 2	0.18
VN2410M		10 @ V_{GS} = 10 V	0.8 to 2	0.19

Features

- Low On-Resistance: 3.5 Ω
- Secondary Breakdown Free: 260 V
- Low Power/Voltage Driven
- Low Input and Output Leakage
- Excellent Thermal Stability

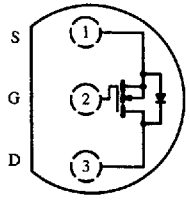
Benefits

- Low Offset Voltage
- Full-Voltage Operation
- Easily Driven Without Buffer
- Low Error Voltage
- No High-Temperature "Run-Away"

Applications

- High-Voltage Drivers: Relays, Solenoids, Lamps, Hammers, Displays, Transistors, etc.
- Telephone Mute Switches, Ringer Circuits
- Power Supply, Converters
- Motor Control

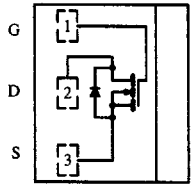
TO-226AA
(TO-92)



Top View

TN2410L
VN2406L
VN2410L

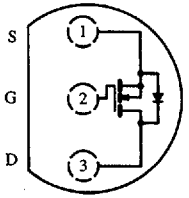
TO-220AB
(Tab Drain)



Top View

VN2406D

TO-237
(Tab Drain)



Top View

VN2406M
VN2410M

Updates to this data sheet may be obtained via facsimile by calling Siliconix FaxBack, 1-408-970-5600. Please request FaxBack document #70204.

8254735 0022543 561

Absolute Maximum Ratings (T_A = 25°C Unless Otherwise Noted)

Parameter		Symbol	TN2410L	VN2406D[b]	VN2406L	VN2406M	VN2410L	VN2410M	Unit
Drain-Source Voltage		V_{DS}	240	240	240	240	240	240	V
Gate-Source Voltage		V_{GS}	±20	±20	±20	±20	±20	±20	
Continuous Drain Current (T_J = 150°C)	T_A= 25°C	I_D	0.18	1.12	0.18	0.19	0.18	0.19	A
	T_A= 100°C		0.11	0.7	0.11	0.12	0.11	0.12	
Pulsed Drain Current[a]		I_{DM}	1	3	1.7	2	1.7	2	
Power Dissipation	T_A= 25°C	P_D	0.8	20	0.8	1	0.8	1	W
	T_A= 100°C		0.32	8	0.32	0.4	0.32	0.4	
Maximum Junction-to-Ambient		R_{thJA}	156	6.25[c]	156	125	156	125	°C/W
Operating Junction and Storage Temperature Range		T_J, T_{stg}	−55 to 150						°C

Notes
a. Pulse width limited by maximum junction temperature.
b. Reference case for all temperature testing.
c. Maximum junction-to-case

Specifications[a]

Parameter	Symbol	Test Conditions	Typ[b]	Limits TN2410L Min	TN2410L Max	VN2406D/L/M Min	VN2406D/L/M Max	VN2410L/M Min	VN2410L/M Max	Unit
Static										
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS} = 0 V, I_D = 100 µA	260	240		240		240		V
Gate-Threshold Voltage	$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = 1 mA	1.4	0.5	1.8	0.8	2	0.8	2	
Gate-Body Leakage	I_{GSS}	V_{DS} = 0 V, V_{GS} = ±15 V					±100		±100	nA
		T_J = 125°C					±500		±500	
		V_{DS} = 0 V, V_{GS} = ±20 V			±10					
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} = 192 V, V_{GS} = 0 V	0.01		1					µA
		T_J = 125°C	1		100					
		V_{DS} = 120 V, V_{GS} = 0 V					10		10	
		T_J = 125°C					500		500	
On-State Drain Current[c]	$I_{D(on)}$	V_{DS} = 10 V, V_{GS} = 4.5 V	0.8	0.25						A
		V_{DS} = 15 V, V_{GS} = 10 V	1.5			1		1		
Drain-Source On-Resistance[c]	$r_{DS(on)}$	V_{GS} = 2.5 V, I_D = 0.1 A	7.5				10		10	Ω
		V_{GS} = 3.5 V, I_D = 0.05 A	4.5		15					
		V_{GS} = 4.5 V, I_D = 0.2 A	4		10					
		T_J = 125°C	7.5		20					
		V_{GS} = 10 V, I_D = 0.5 A	3.5				6		10	
		T_J = 125°C	6.5				14.8		24.7	
Forward Transconductance[c]	g_{fs}	V_{DS} = 10 V, I_D = 0.2 A	500	100						mS
		V_{DS} = 10 V, I_D = 0.5 A	530			300		300		

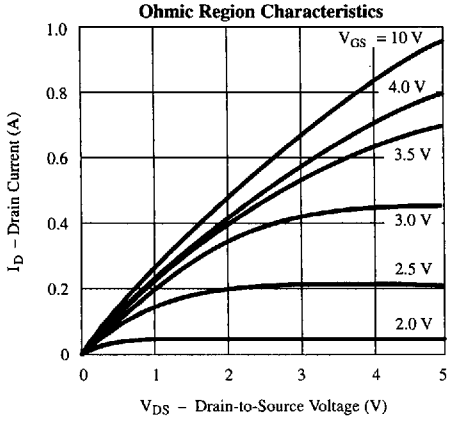
8254735 0022544 4T8

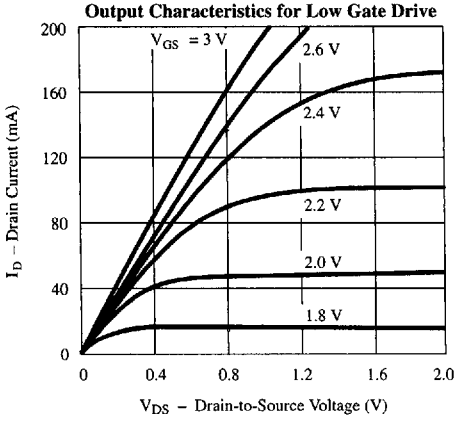
Specifications[a]

Parameter	Symbol	Test Conditions	Typ[b]	Limits TN2410L Min	TN2410L Max	VN2406D/L/M Min	VN2406D/L/M Max	VN2410L/M Min	VN2410L/M Max	Unit
Dynamic										
Input Capacitance	C_{iss}	V_{DS} = 25 V, V_{GS} = 0 V f = 1 MHz	115		135		135		135	pF
Output Capacitance	C_{oss}		30		50		50		50	
Reverse Transfer Capacitance	C_{rss}		5		20		20		20	
Switching[d]										
Turn-On Time	t_{ON}	V_{DD} = 60 V, R_L = 150 Ω I_D ≅ 0.4 A, V_{GEN} = 10 V R_G = 25 Ω	5		35					ns
	$t_{d(on)}$		3				8		8	
	t_r		2				8		8	
Turn-Off Time	t_{OFF}		26		60					
	$t_{d(off)}$		20				23		23	
	t_f		6				24		34	

Notes
a. T_A = 25°C unless otherwise noted. VNDB24
b. For DESIGN AID ONLY, not subject to production testing.
c. Pulse test: PW ≤ 300 µs duty cycle ≤ 2%.
d. Switching time is essentially independent of operating temperature.

Typical Characteristics (25°C Unless Otherwise Noted)

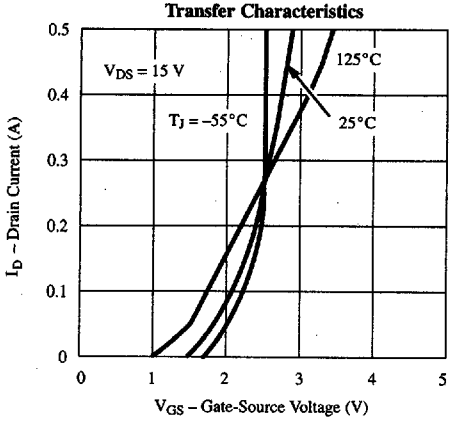




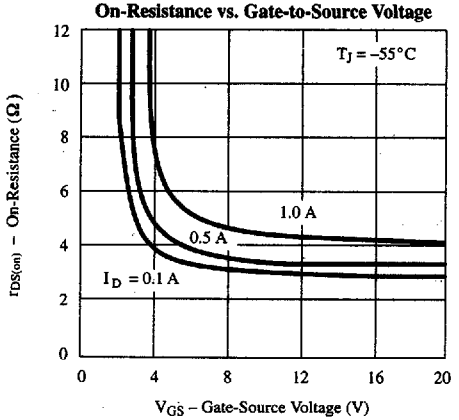
8254735 0022545 334

Typical Characteristics (25°C Unless Otherwise Noted) (Cont'd)

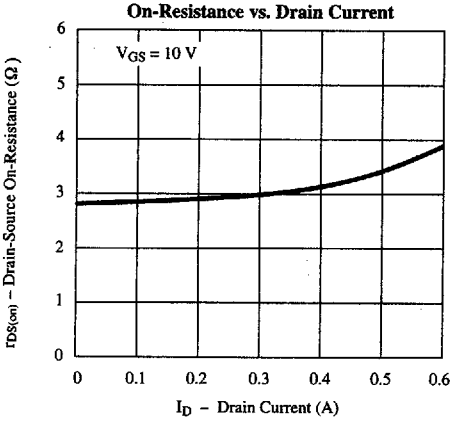
Transfer Characteristics



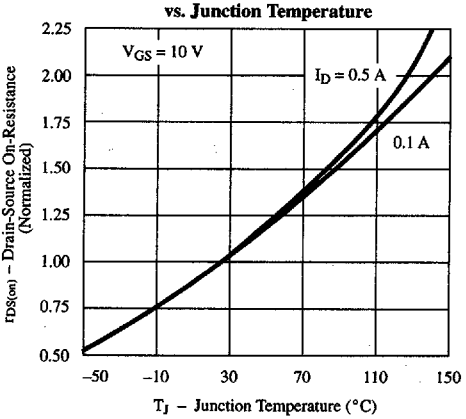
On-Resistance vs. Gate-to-Source Voltage



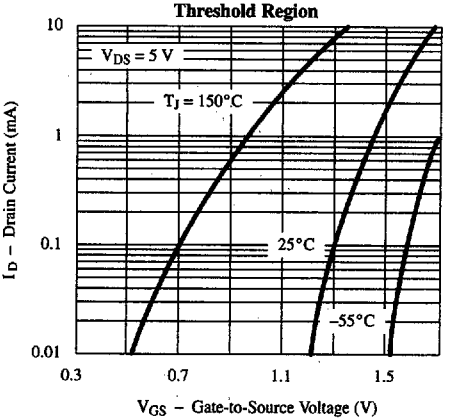
On-Resistance vs. Drain Current



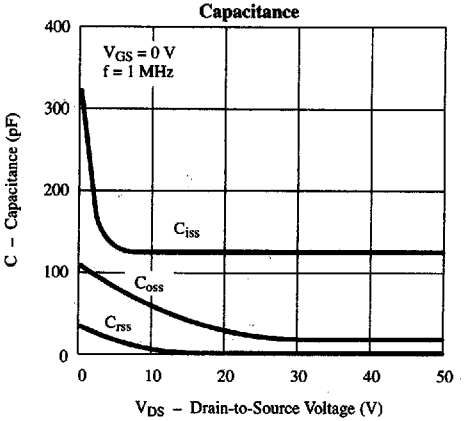
Normalized On-Resistance vs. Junction Temperature



Threshold Region



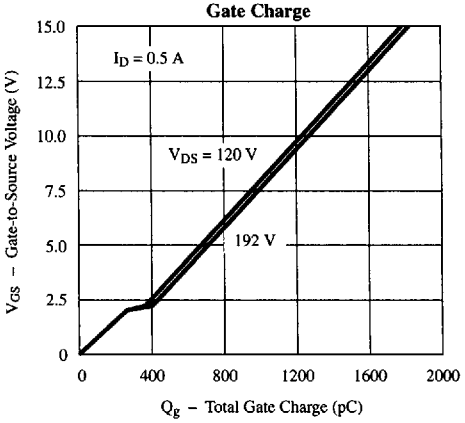
Capacitance



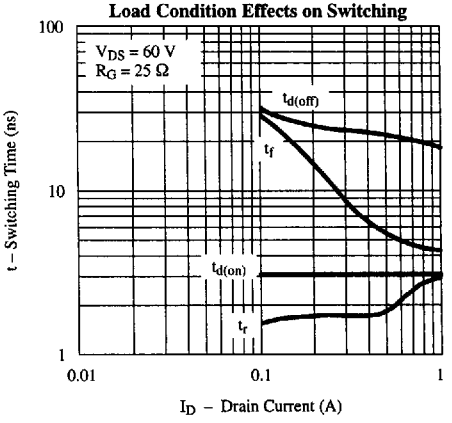
8254735 0022546 270

Typical Characteristics (25°C Unless Otherwise Noted) (Cont'd)

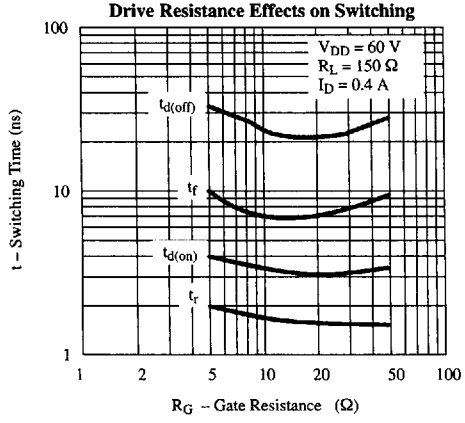
Gate Charge



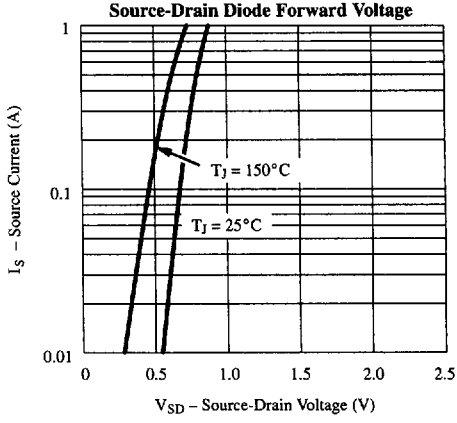
Load Condition Effects on Switching



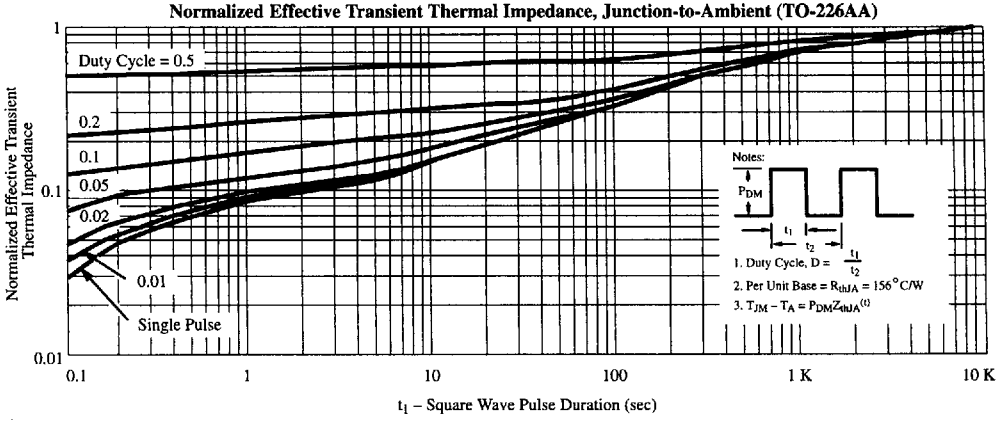
Drive Resistance Effects on Switching



Source-Drain Diode Forward Voltage



Normalized Effective Transient Thermal Impedance, Junction-to-Ambient (TO-226AA)



8254735 0022547 107

ENTEGRECİ

Bu belge www.entegreci.com üzerinden sunulmaktadır.

Elektronik komponent tedarikinde Entegreci

Entegreci, Eskişehir merkezli, Türkiye geneline satış yapan bir elektronik komponent mağazasıdır. Entegreler (IC), mikrodenetleyiciler, transistörler, diyotlar, pasif elemanlar, konnektörler, modüller ve geliştirme kartları tek adetten seri üretim adetlerine kadar satılır. Ürün sayfalarında güncel stok durumunu, fiyatı ve datasheet bağlantısını bulabilirsiniz.

Parça koduyla arama

Üretici parça numarasını yazın; stok ve fiyatı hemen görün.

www.entegreci.com

Ürün kategorileri

Entegreden kapasitöre tüm elektronik komponent kategorileri.

Kategorilere göz atın

Üreticiler

Aradığınız üreticinin ürünlerini tek sayfada inceleyin.

Üreticileri görün

Toplu alım ve teklif

Listede olmayan ya da yüksek adetli parçalar için teklif isteyin.

Teklif isteyin

www.entegreci.com | **destek@entegreci.com** | **0850 305 90 34**

Entegreci is an online electronic components store based in Türkiye. Search by manufacturer part number to see stock, prices and datasheets for integrated circuits, microcontrollers, transistors, passive components and connectors, or request a quote for parts that are not listed.

Bu sayfa Entegreci tarafından eklenmiştir. Belgenin önceki sayfaları asıl yayıncısına aittir ve içeriği değiştirilmemiştir; en güncel sürüm için belgenin yayıncısına başvurun.