N-Channel 240-V (D-S) MOSFET

PRODUCT SUMMARY				
Part Number	$V_{(BR)DSS}$ Min (V)	$r_{DS(on)}$ Max (Ω)	$V_{GS(th)}$ (V)	I_D Min (mA)
TN2460L	240	60 @ V_{GS} = 10 V	0.5 to 1.8	75
TN2460T		60 @ V_{GS} = 10 V	0.5 to 1.8	51

FEATURES

- Low On-Resistance: 40 Ω
- Secondary Breakdown Free: 260 V
- Low Power/Voltage Driven
- Low Input and Output Leakage
- Excellent Thermal Stability

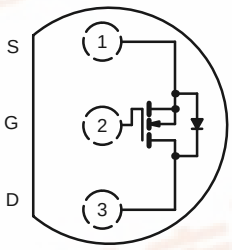
BENEFITS

- 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)



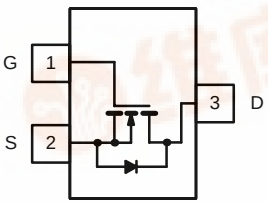
Top View

TN2460L

Device Marking Front View

"S" = Siliconix Logo
xxyy = Date Code

TO-236 (SOT-23)



Top View

Marking Code: T2*wll*

T2 = Part Number Code for TN2460T
w = Week Code
ll = Lot Traceability

ABSOLUTE MAXIMUM RATINGS (T_A = 25°C UNLESS OTHERWISE NOTED)					
Parameter		Symbol	TN2460L	TN2460T	Unit
Drain-Source Voltage		V_{DS}	240	240	V
Gate-Source Voltage		V_{GS}	±20	±20	
Continuous Drain Current (T_J = 150°C)	T_A= 25°C	I_D	75	51	mA
	T_A= 100°C		48	32	
Pulsed Drain Current[a]		I_{DM}	800	400	
Power Dissipation	T_A= 25°C	P_D	0.8	0.36	W
	T_A= 100°C		0.32	0.14	
Thermal Resistance, Junction-to-Ambient		R_{thJA}	156	350	°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.

SPECIFICATIONS (T_A = 25°C UNLESS OTHERWISE NOTED)

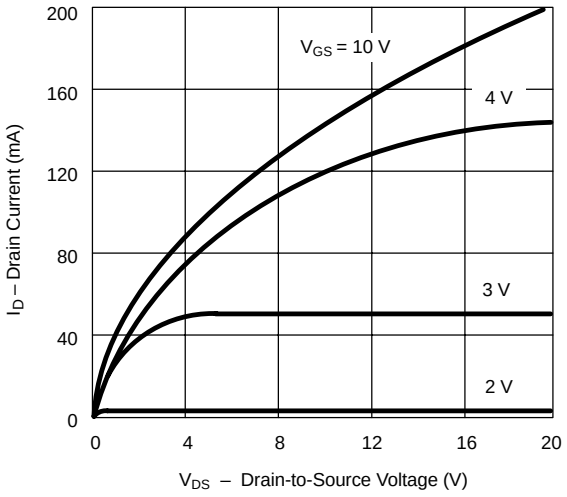
Parameter	Symbol	Test Conditions	Limits Min	Limits Typ[a]	Limits Max	Unit
Static						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS} = 0 V, I_D = 10 μA	240	260		V
Gate-Threshold Voltage	$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = 250 μA	0.5	1.65	1.8	V
Gate-Body Leakage	I_{GSS}	V_{DS} = 0 V, V_{GS} = ±20 V			±10	nA
		T_J = 125°C		±5		nA
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} = 120 V, V_{GS} = 0 V			0.1	μA
		T_J = 125°C			5	μA
On-State Drain Current[b]	$I_{D(on)}$	V_{DS} = 10 V, V_{GS} =10 V	75	140		mA
		V_{DS} = 10 V, V_{GS} = 4.5 V	20	130		mA
Drain-Source On-Resistance[b]	$r_{DS(on)}$	V_{GS} = 10 V, I_D = 0.05 A		38	60	Ω
		V_{GS} = 4.5 V, I_D = 0.02 A		40	60	Ω
		T_J = 125°C		75	120	Ω
Forward Transconductance[b]	g_{fs}	V_{DS} = 10 V, I_D = 0.05 A	30	70		mS
Dynamic						
Input Capacitance	C_{iss}	V_{DS} = 25 V, V_{GS} = 0 V, f = 1 MHz		14	30	pF
Output Capacitance	C_{oss}			4	15	pF
Reverse Transfer Capacitance	C_{rss}			1	10	pF
Switching[c]						
Turn-On Time	t_{ON}	V_{DD} = 25 V, R_L = 500 Ω I_D ≅ 0.05 A, V_{GEN} = 10 V, R_G = 25 Ω		8	20	ns
Turn-Off Time	t_{OFF}			20	35	ns

Notes
a. For DESIGN AID ONLY, not subject to production testing.
b. Pulse test: PW ≤ 80 μs duty cycle ≤ 1%.
c. Switching time is essentially independent of operating temperature.

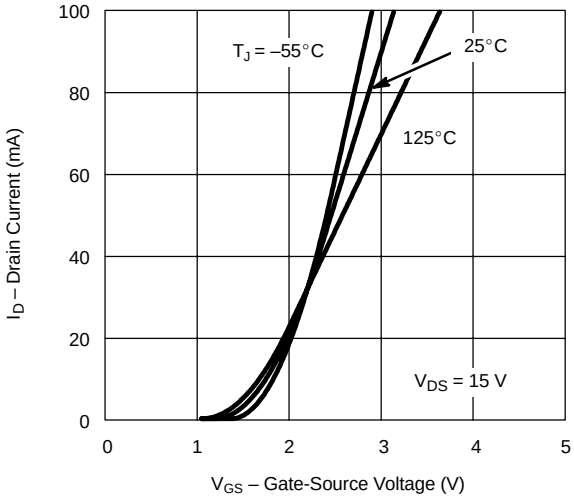
VNDN24

TYPICAL CHARACTERISTICS (T_A = 25°C UNLESS OTHERWISE NOTED)

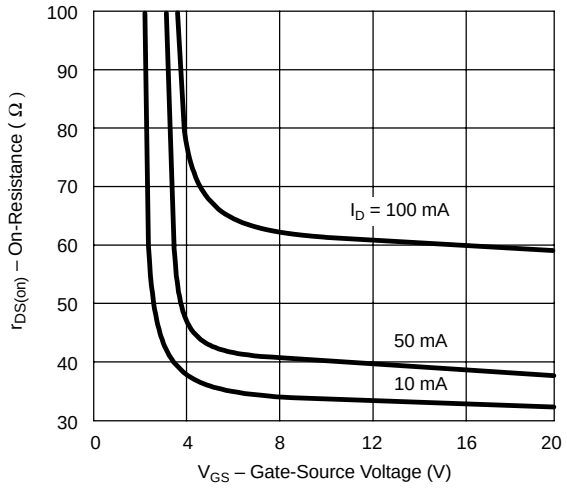
Output Characteristics



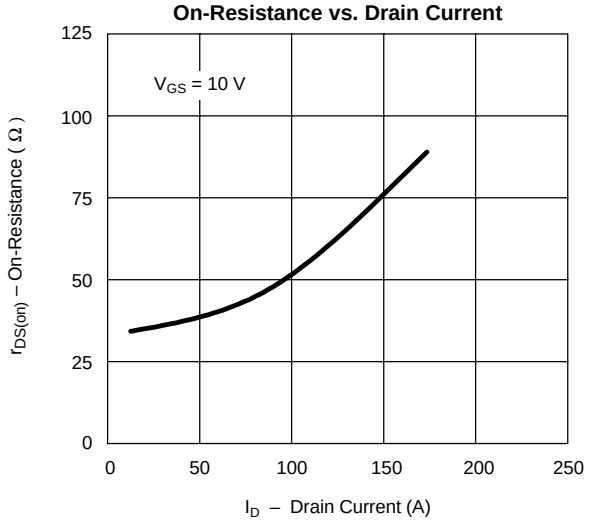
Transfer Characteristics



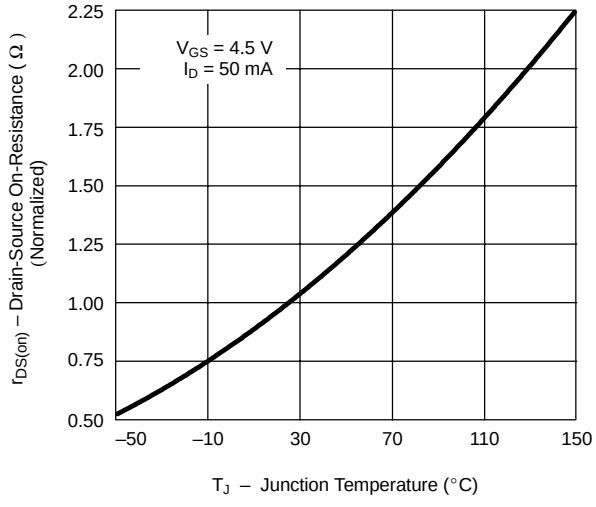
On-Resistance vs. Gate-to-Source Voltage



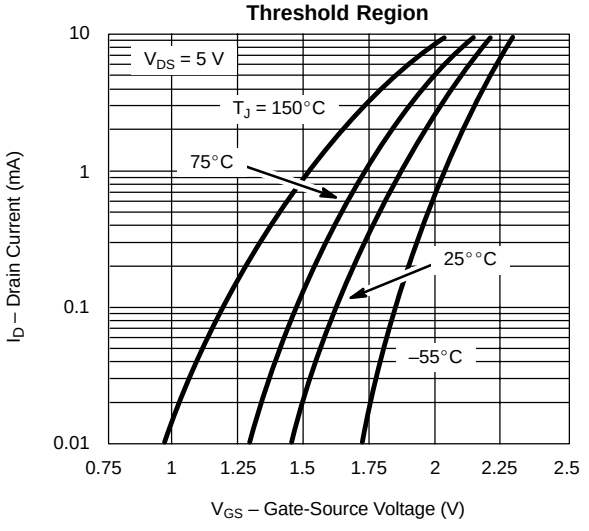
On-Resistance vs. Drain Current



Normalized On-Resistance vs. Junction Temperature

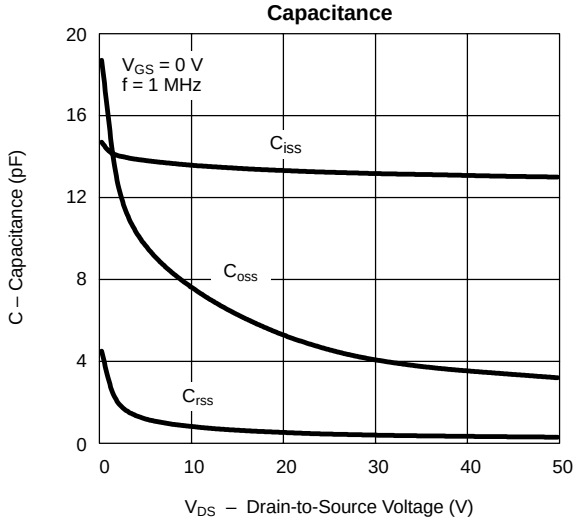


Threshold Region

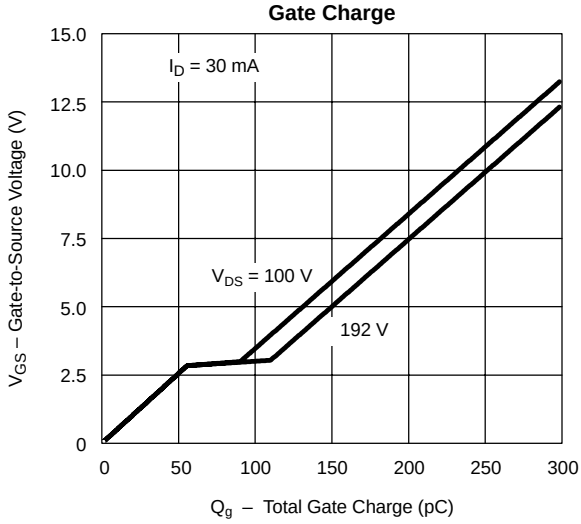


TYPICAL CHARACTERISTICS (T_A = 25°C UNLESS OTHERWISE NOTED)

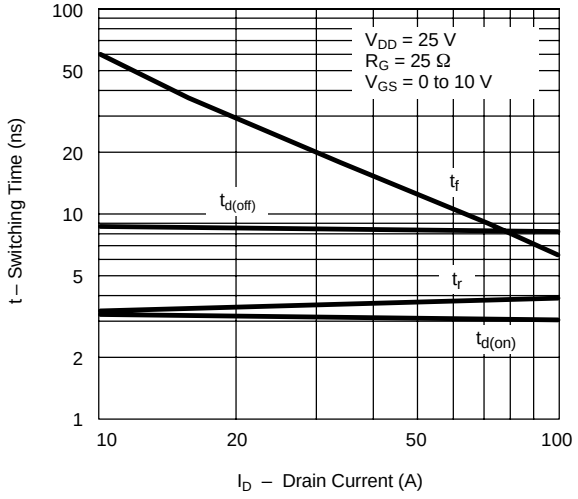
Capacitance



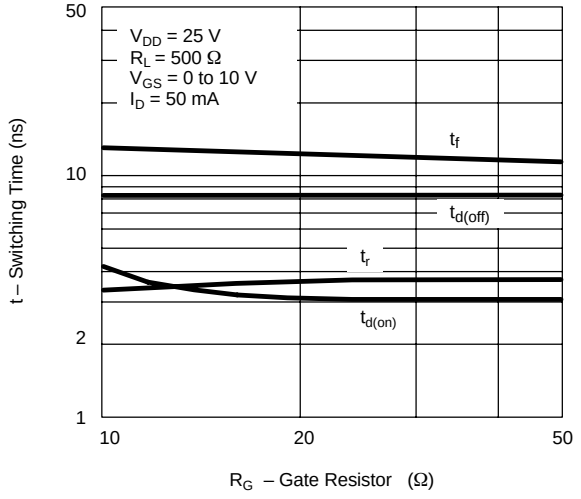
Gate Charge



Load Condition Effects on Switching



Drive Resistance Effects on Switching



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