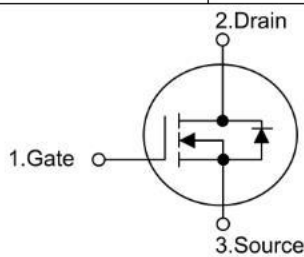


Description

The TX50N06 is the N-Channel logic enhancement mode power field effect transistors are produced using high cell density, DMOS trench technology. This high density process is especially tailored to minimize on-state resistance. These devices are particularly suited for low voltage application.

Pin configuration

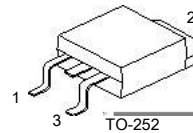
Order Number	Package
TX50N06	TO-252



Features

VDS	60V
RDS(on)Max.	20mΩ
ID	50A

- High density cell design for ultra low RDS(on)
- Excellent package for good heat dissipation



Maximum Ratings (Tc = 25°C unless otherwise noted*)

Parameter	Symbol	Ratings	Units
Drain-Source Voltage	VDSS	60	V
Gate-Source Voltage	VGSS	±20	V
Continuous Drain Current	ID	Tc=25°C	50*
		Tc=100°C	35.4*
Pulsed Drain Current	IDM	90	A
Power Dissipation	PD	Tc=25°C	85
		Derate above 25°C	0.3
Single pulse avalanche energy (note 1)	EAS	245	
Operating Junction and Storage Temperature Range	TJ,Tstg	-55~+175	°C

* Drain current limited by maximum junction temperature.

1: EAS condition: L=0.5mH, VDD=30V, RG=25Ω, TJ=25°C.

Thermal Characteristics

Parameter	Symbol	Ratings	Units
Thermal resistance, case to sink typ.	RthCS	0.5	°C/W
Thermal resistance junction to case.	RthJC	3.3	°C/W
Thermal resistance junction to ambient.	RthJA	110	°C/W

Electrical characteristics (TA =25°C Unless Otherwise Specified)

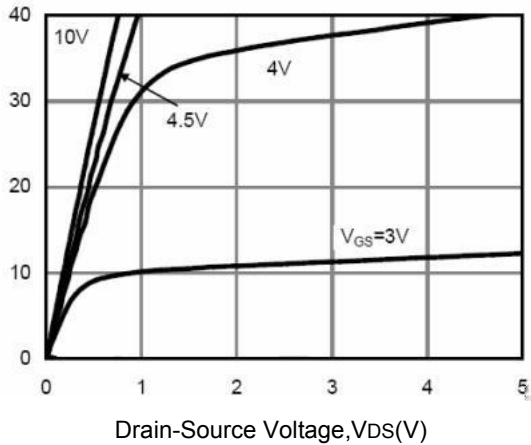
Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Units
STATIC						
BVDSS	Drain-Source Breakdown Voltage	VGS=0V, ID=250μA	60	—	—	V
VGS(th)	Gate Threshold Voltage	VDS=VGS, ID=250μA	1.4	—	2.5	V
IGSS	Gate-Body Leakage	VDS=0V, VGS=±20V	—	—	± 100	nA
IDSS	Zero Gate Voltage Drain Current	VDS=60V, VGS=0V	—	—	1	μA
RDS(ON)	Drain-Source On-Resistance	VGS=10V, ID=20A	—	14	20	mΩ
VSD	Diode Forward Voltage	IS=20A, VGS=0V	—	—	1.2	V
DYNAMIC						
Qg	Total Gate Charge	VDS=30V, VGS=10V, ID=20A	—	50	—	nC
Qgs	Gate-Source Charge		—	6	—	
Qgd	Gate-Drain Charge		—	15	—	
Ciss	Input Capacitance	VDS=30V, VGS=0V, f=1MHz	—	2050	—	pF
Coss	Output Capacitance		—	158	—	
Crss	Reverse Transfer Capacitance		—	120	—	
td(on)	Turn-On Delay Time	VDD =30V, RG=3Ω RL=6.7Ω,VGS=10V,	—	7.4	—	ns
tr	Turn-On Rise Time		—	5.1	—	
td(off)	Turn-Off Delay Time		—	28.2	—	
tf	Turn-Off Fall Time		—	5.5	—	
trr	Reverse Recovery Time	TJ = 25°C, IF =20A	—	28	—	nS
Qrr	Reverse Recovery Charge	di/dt = 100A/μs	—	40	—	nC

Notes :a. Pulse test:pulse width 300 us,duty cycle 2% ,Guaranteed by design,not subject to production testing.

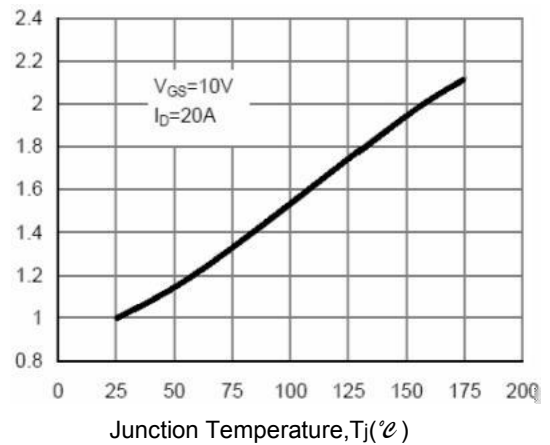
b. XDSSEMI reserves the right to improve product design,functions and reliability without notice.

Typical Characteristics (T_J = 25°C Noted)

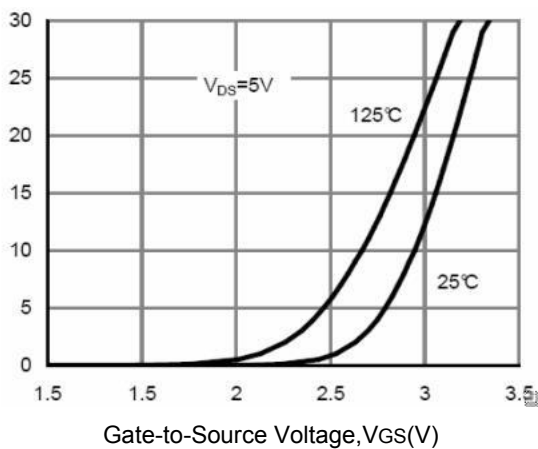
Output Characteristics



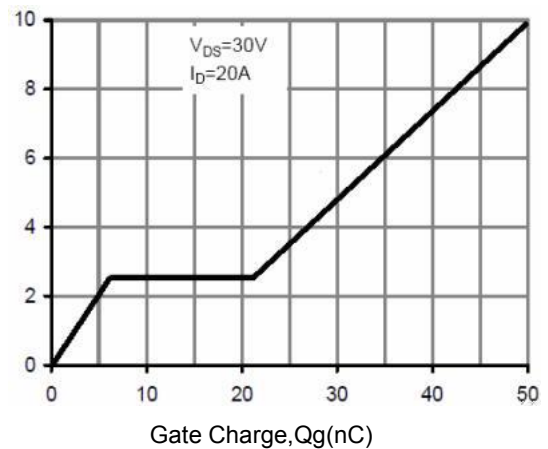
RDS(on) vs. Junction Temperature



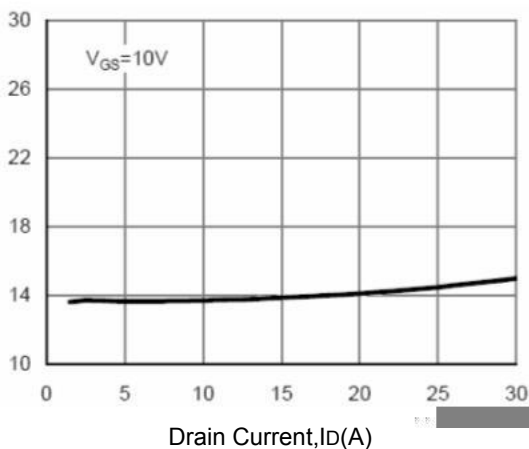
Transfer Characteristics



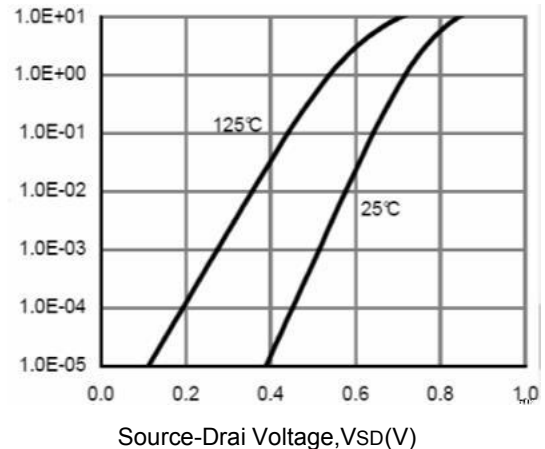
Gate Charge



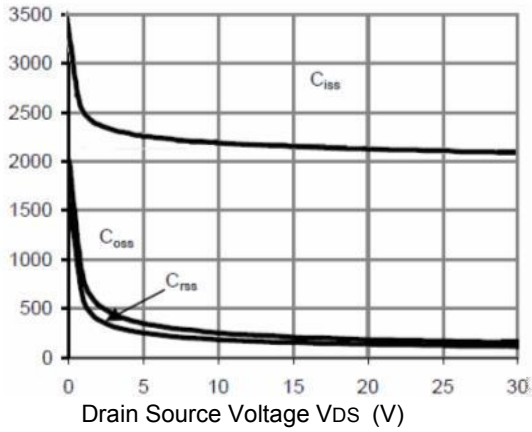
RDS(on) vs. Drain Current



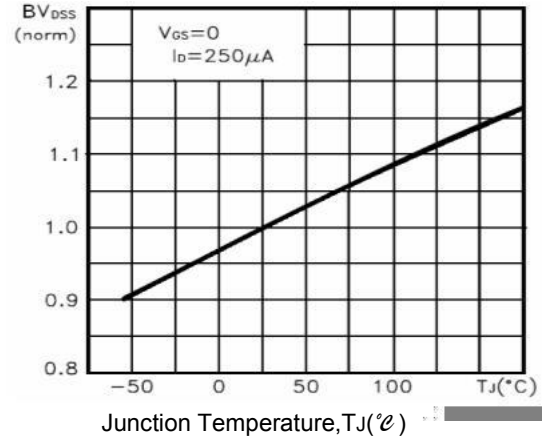
Source-to- Drain Diode Forward



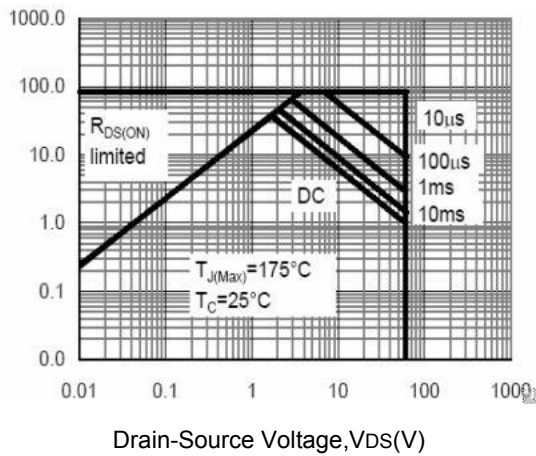
Capacitance vs. Drain Source Voltage



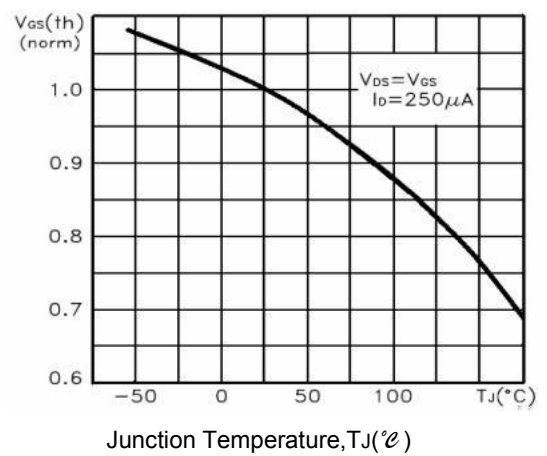
BV_{DSS} vs. Junction Temperature



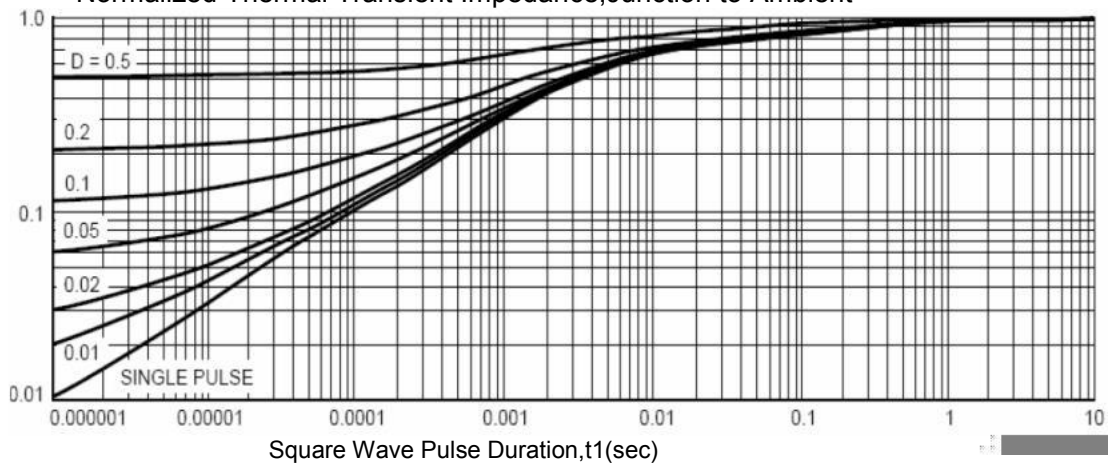
Safe Operation Area



BV_{DSS} vs. Junction Temperature

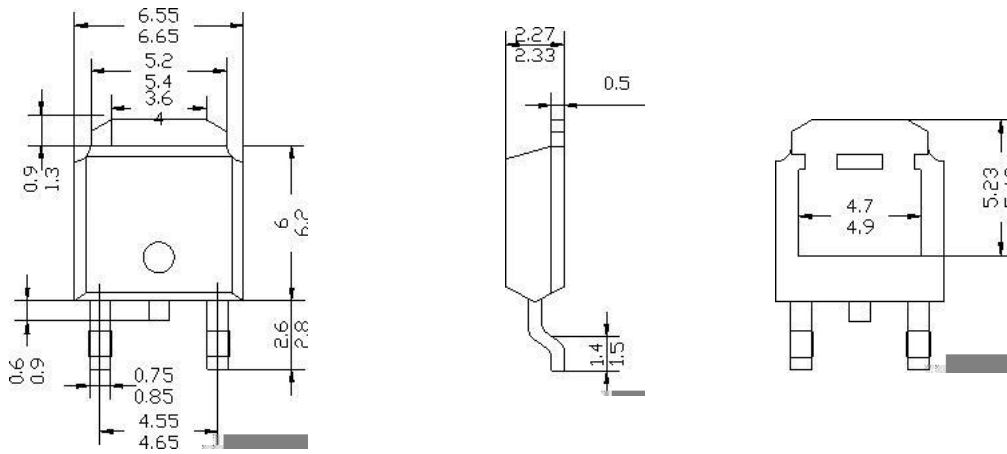


Normalized Thermal Transient Impedance, Junction to Ambient



TO-252

Unit: mm



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