

SHINDENGEN

VX-2 Series Power MOSFET

N-Channel Enhancement type

2SK2177 (F1E50VX2)

500V 1A

FEATURES

Input capacitance (C_{iss}) is small.
Especially, input capacitance at 0 bias is small.
The static $R_{ds(on)}$ is small.
The switching time is fast.

APPLICATION

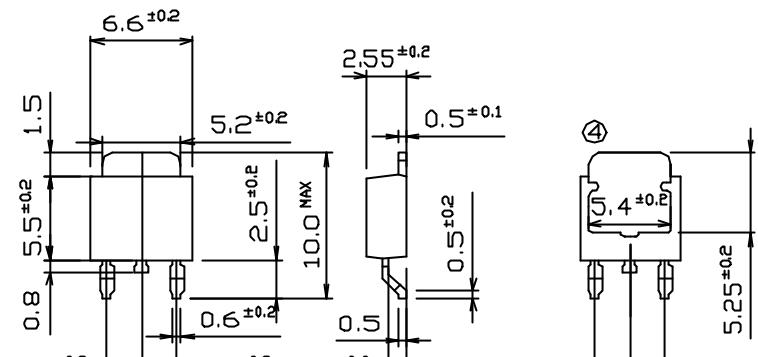
Switching power supply of AC 100V input
High voltage power supply
Inverter

RATINGS

OUTLINE DIMENSIONS

Case : E-pack

(Unit : mm)



• G

810

815

47

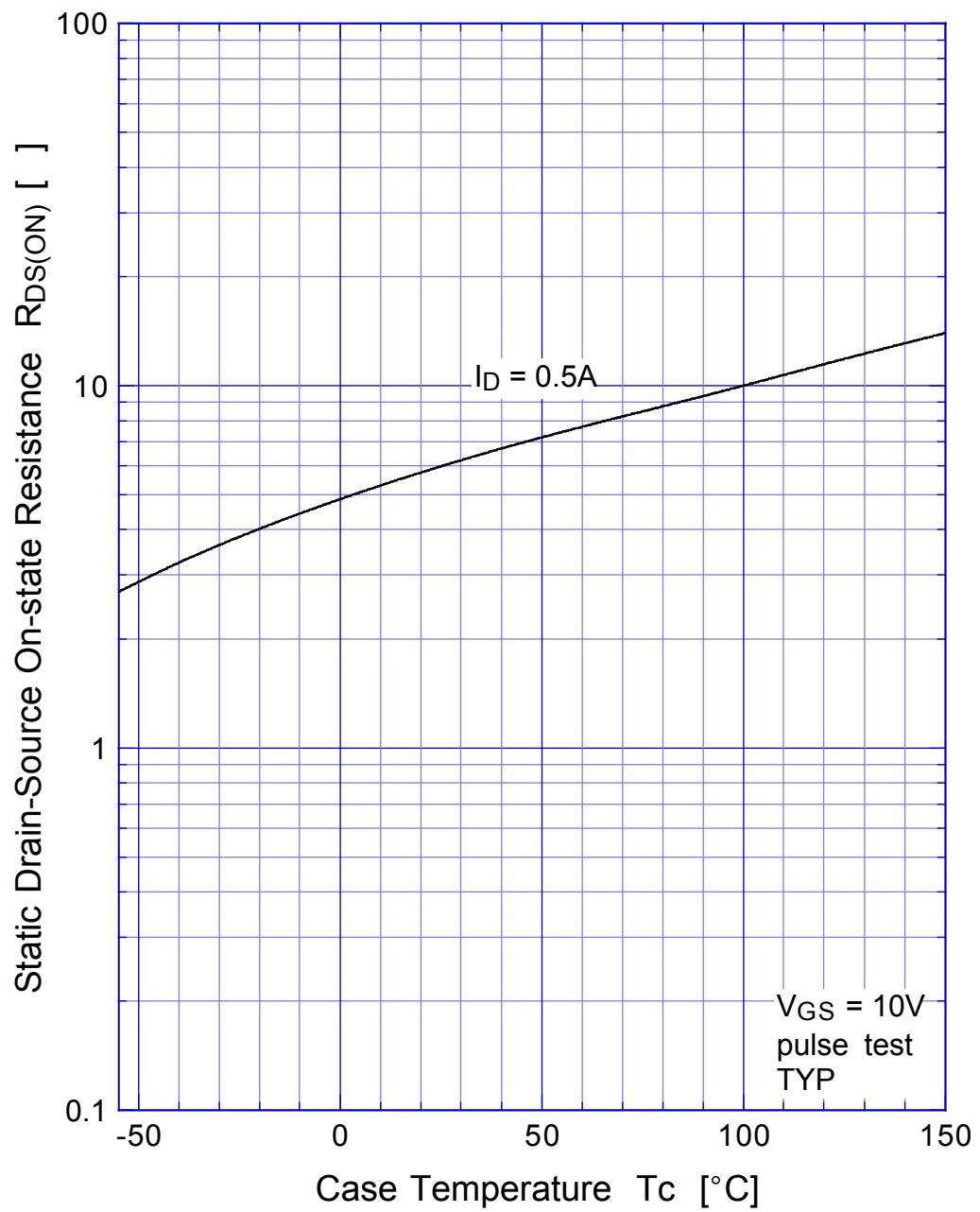
Absolute Maximum Ratings ($T_c = 25^\circ C$)

Item	Symbol	Conditions	Ratings	Unit
Storage Temperature	T _{stg}		-55 ~ 150	
Channel Temperature	T _{ch}		150	
Drain-Source Voltage	V _{DSS}		500	V
Gate-Source Voltage	V _{GSS}		± 30	
Continuous Drain Current (DC)	I _D		1	A
Continuous Drain Current (Peak)	I _{DP}		3	
Continuous Source Current (DC)	I _S		1	
Total Power Dissipation	P _T		10	W
Single Pulse Avalanche Current	I _{AS}	T _{ch} = 25	1	A

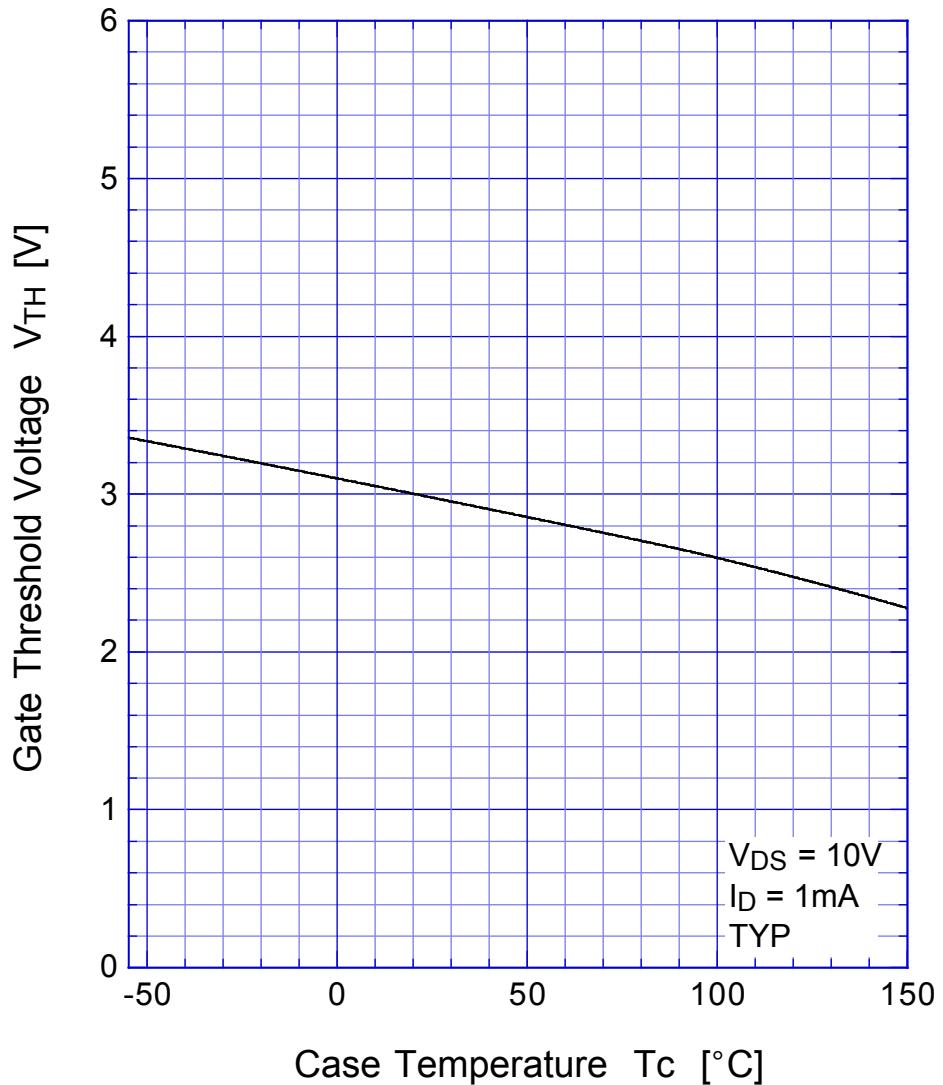
●Electrical Characteristics T_c = 25°C

Item	Symbol	Conditions	Min.	Typ.	Max.	Unit
Drain-Source Breakdown Voltage	V _{(BR)DSS}	ID = 1mA, VGS = 0V	500			V
Zero Gate Voltage Drain Current	I _{DSS}	VDS = 500V, VGS = 0V			250	μA
Gate-Source Leakage Current	I _{GSS}	VGS = ±30V, VDS = 0V			±0.1	
Forward Transconductance	g _{fS}	ID = 0.5A, VDS = 10V	0.3	0.7		S
Static Drain-Source On-state Resistance	R _{D(S)ON}	ID = 0.5A, VGS = 10V		5.8	7.0	Ω
Gate Threshold Voltage	V _{TH}	ID = 0.3mA, VDS = 10V	2.5	3.0	3.5	V
Source-Drain Diode Forwade Voltage	V _{SD}	IS = 0.5A, VGS = 0V			1.5	
Thermal Resistance	θ _{jc}	junction to case			12.5	°C/W
Total Gate Charge	Q _g	VDD = 400V, VGS = 10V, ID = 1A		6		nC
Input Capacitance	C _{iss}	VDS = 10V, VGS = 0V, f = 1MHz		140		pF
Reverse Transfer Capacitance	C _{rss}			13		
Output Capacitance	C _{oss}			45		
Turn-On Time	t _{on}	ID = 0.5A, VGS = 10V, RL = 300Ω		35	70	ns
Turn-Off Time	t _{off}			60	100	

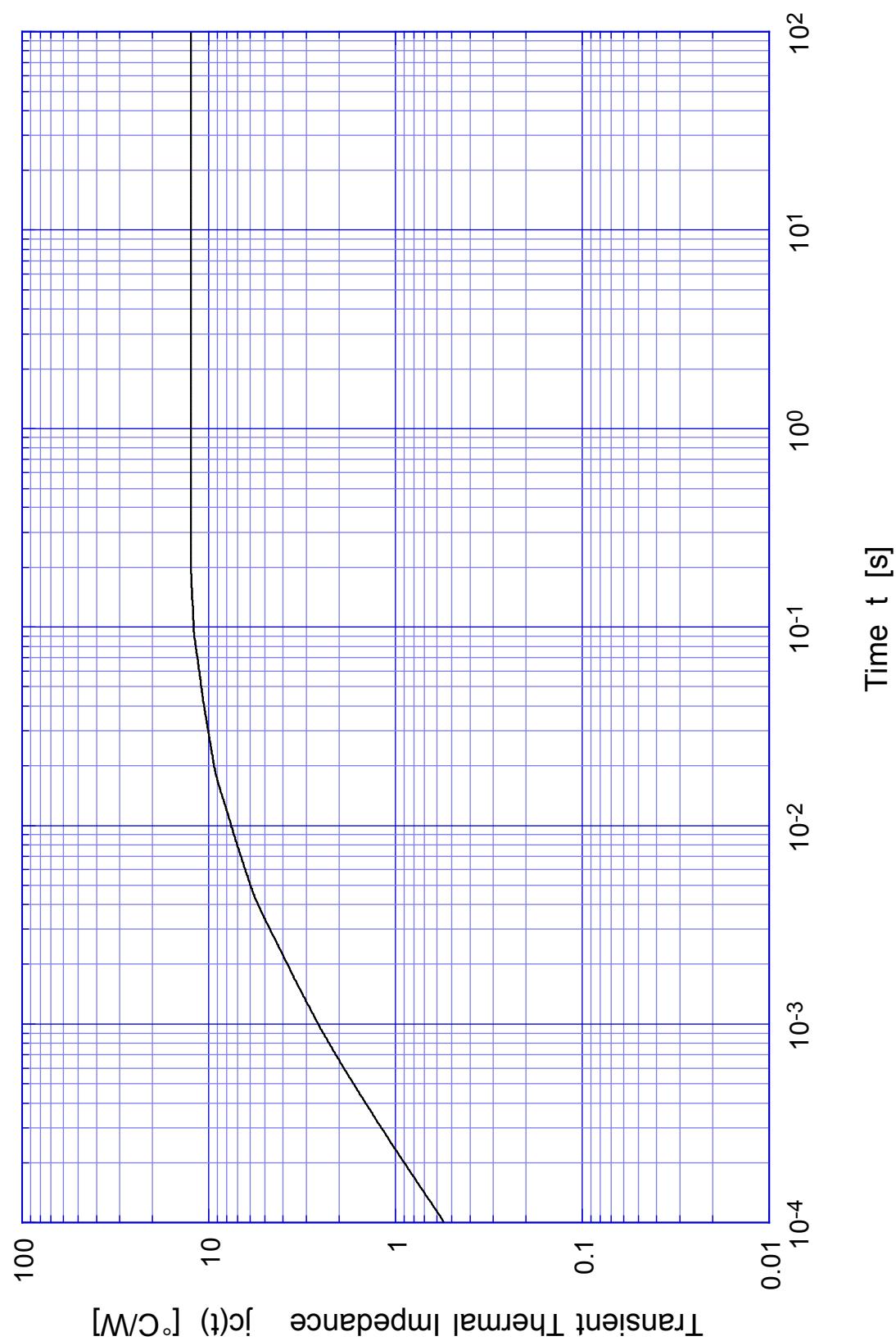
2SK2177 Static Drain-Source On-state Resistance



2SK2177 Gate Threshold Voltage



2SK2177 Transient Thermal Impedance



2SK2177

Power Derating

