

VX-2 Series Power MOSFET

N-Channel Enhancement type

2SK2475
(F12F50VX2)

500V 12A

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

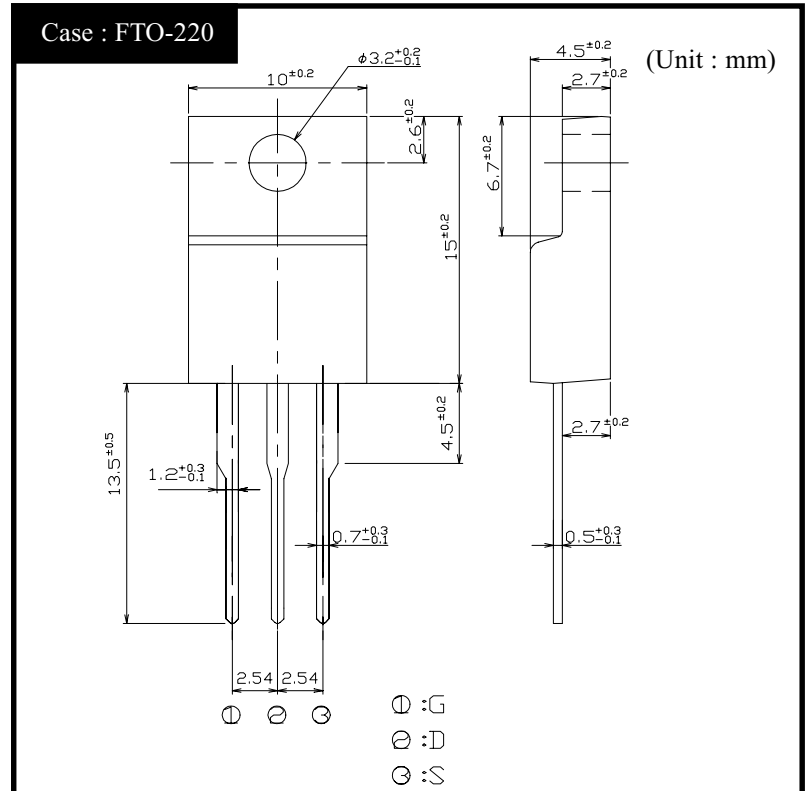
- Switching power supply of AC 100V input
- High voltage power supply
- Inverter

RATINGS

- Absolute Maximum Ratings (Tc = 25°C)

Item	Symbol	Conditions	Ratings	Unit
Storage Temperature	T_{stg}		-55~150	°C
Channel Temperature	T_{ch}		150	
Drain-Source Voltage	V_{DSS}		500	V
Gate-Source Voltage	V_{GSS}		±30	
Continuous Drain Current (DC)	I_D		12	A
Continuous Drain Current (Peak)	I_{DP}		36	
Continuous Source Current (DC)	I_S		12	
Total Power Dissipation	P_T		50	W
Single Pulse Avalanche Current	I_{AS}	$T_{ch} = 25^{\circ}C$	12	A
Dielectric Strength	V_{dis}	Terminals to case, AC 1 minute	2	kV
Mounting Torque	TOR	(Recommended torque : $0.3N \cdot m$)	0.5	$N \cdot m$

OUTLINE DIMENSIONS

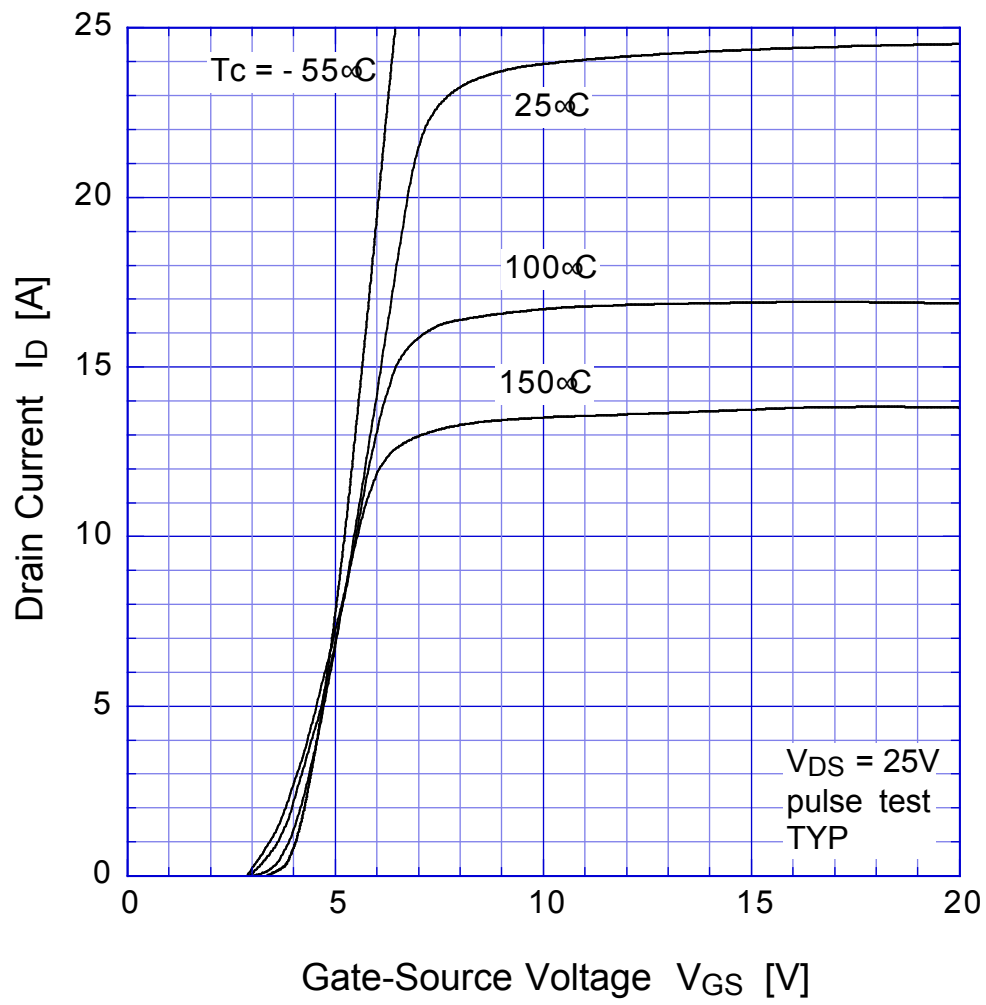


●Electrical Characteristics T_c = 25°C

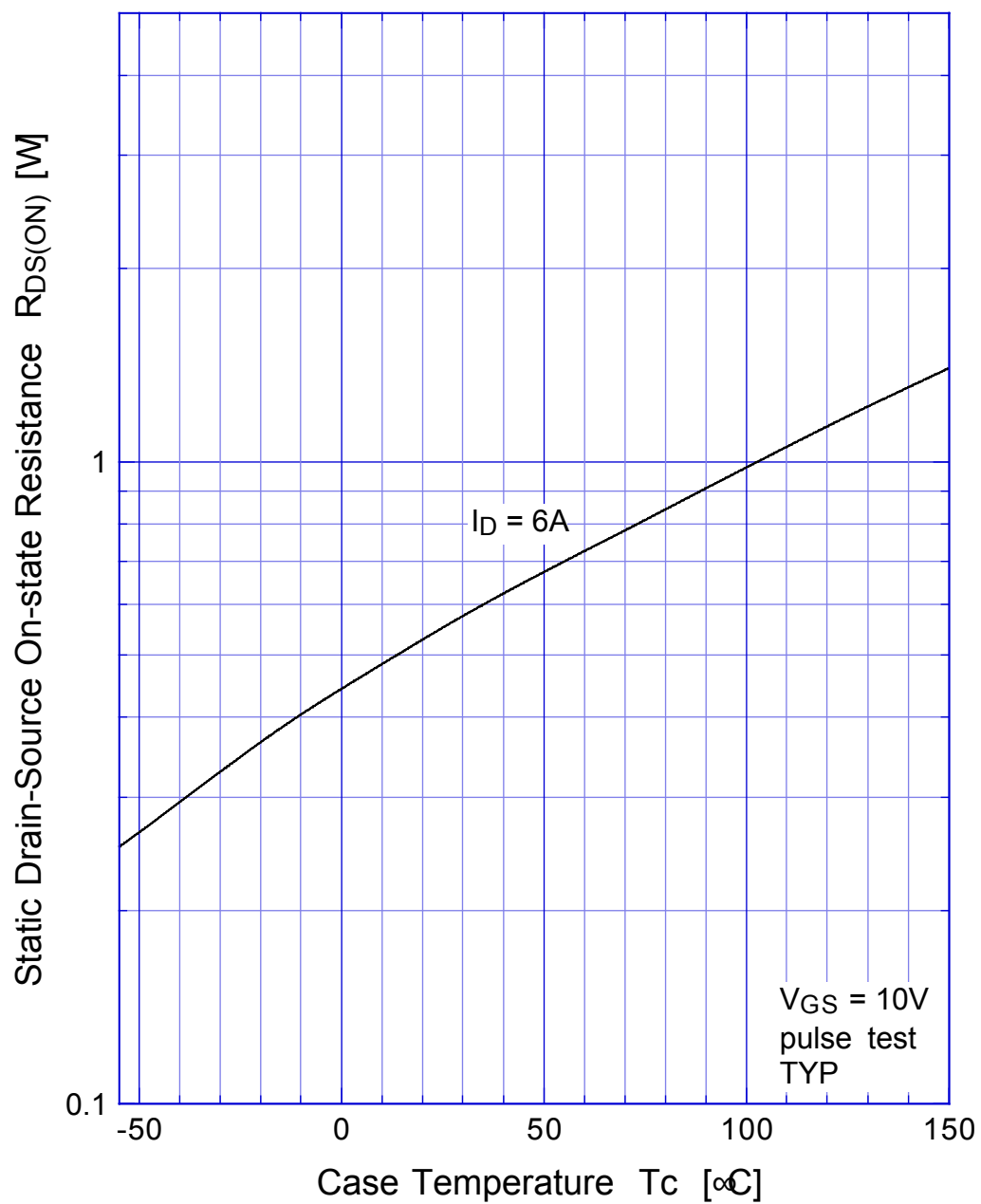
Item	Symbol	Conditions	Min.	Typ.	Max.	Unit
Drain-Source Breakdown Voltage	V _{(BR)DSS}	I _D = 1mA, V _{GS} = 0V	500			V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = 500V, V _{GS} = 0V			250	μA
Gate-Source Leakage Current	I _{GSS}	V _{GS} = ±30V, V _{DS} = 0V			±0.1	
Forward Transconductance	g _{fs}	I _D = 6A, V _{DS} = 10V	3.0	7.6		S
Static Drain-Source On-state Resistance	R _{DS(ON)}	I _D = 6A, V _{GS} = 10V		0.55	0.7	Ω
Gate Threshold Voltage	V _{TH}	I _D = 1mA, V _{DS} = 10V	2.5	3.0	3.5	V
Source-Drain Diode Forwade Voltage	V _{SD}	I _S = 6A, V _{GS} = 0V			1.5	
Thermal Resistance	θ _{jc}	junction to case			2.5	°C/W
Total Gate Charge	Q _g	V _{DD} = 400V, V _{GS} = 10V, I _D = 12A		42		nC
Input Capacitance	C _{iss}	V _{DS} = 10V, V _{GS} = 0V, f = 1MHz		1200		pF
Reverse Transfer Capacitance	C _{rss}			90		
Output Capacitance	C _{oss}			270		
Turn-On Time	t _{on}	I _D = 6A, V _{GS} = 10V, R _L = 25Ω		90	130	ns
Turn-Off Time	t _{off}			190	280	

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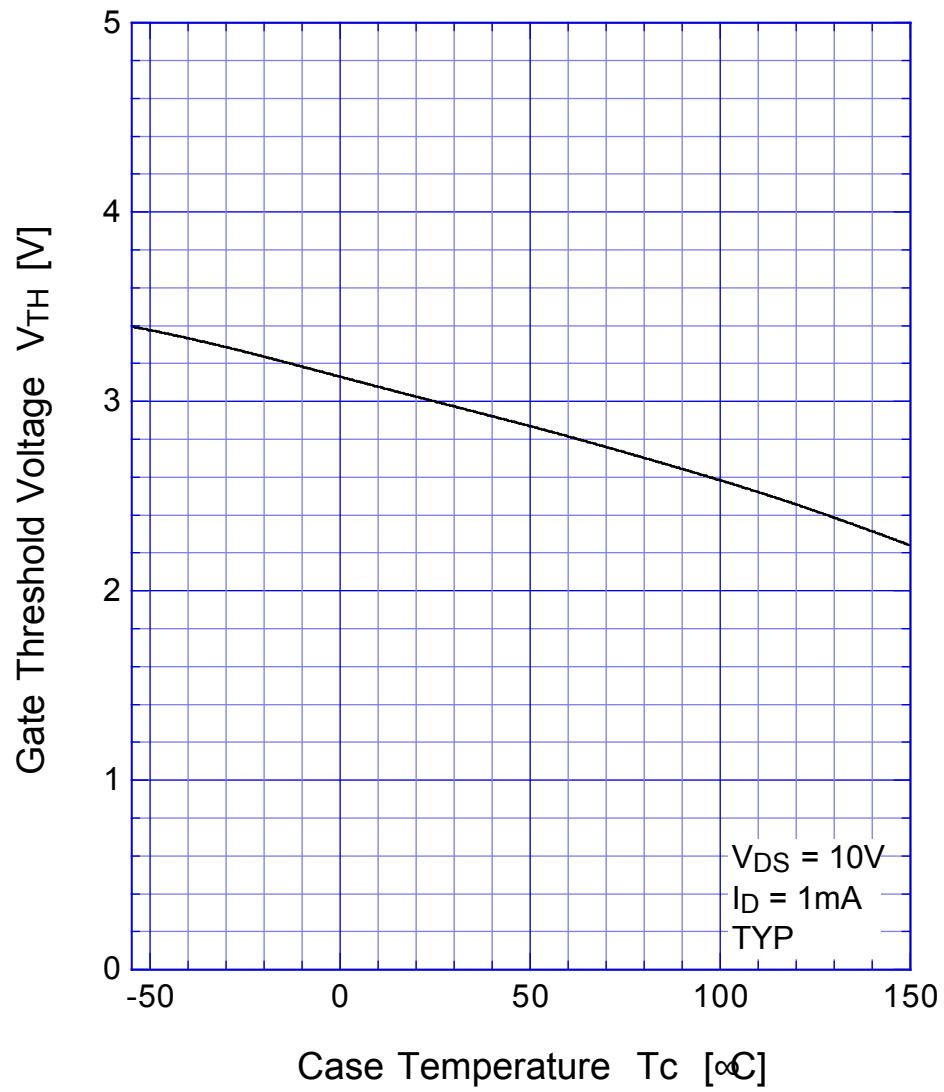
Transfer Characteristics



2SK2475 Static Drain-Source On-state Resistance

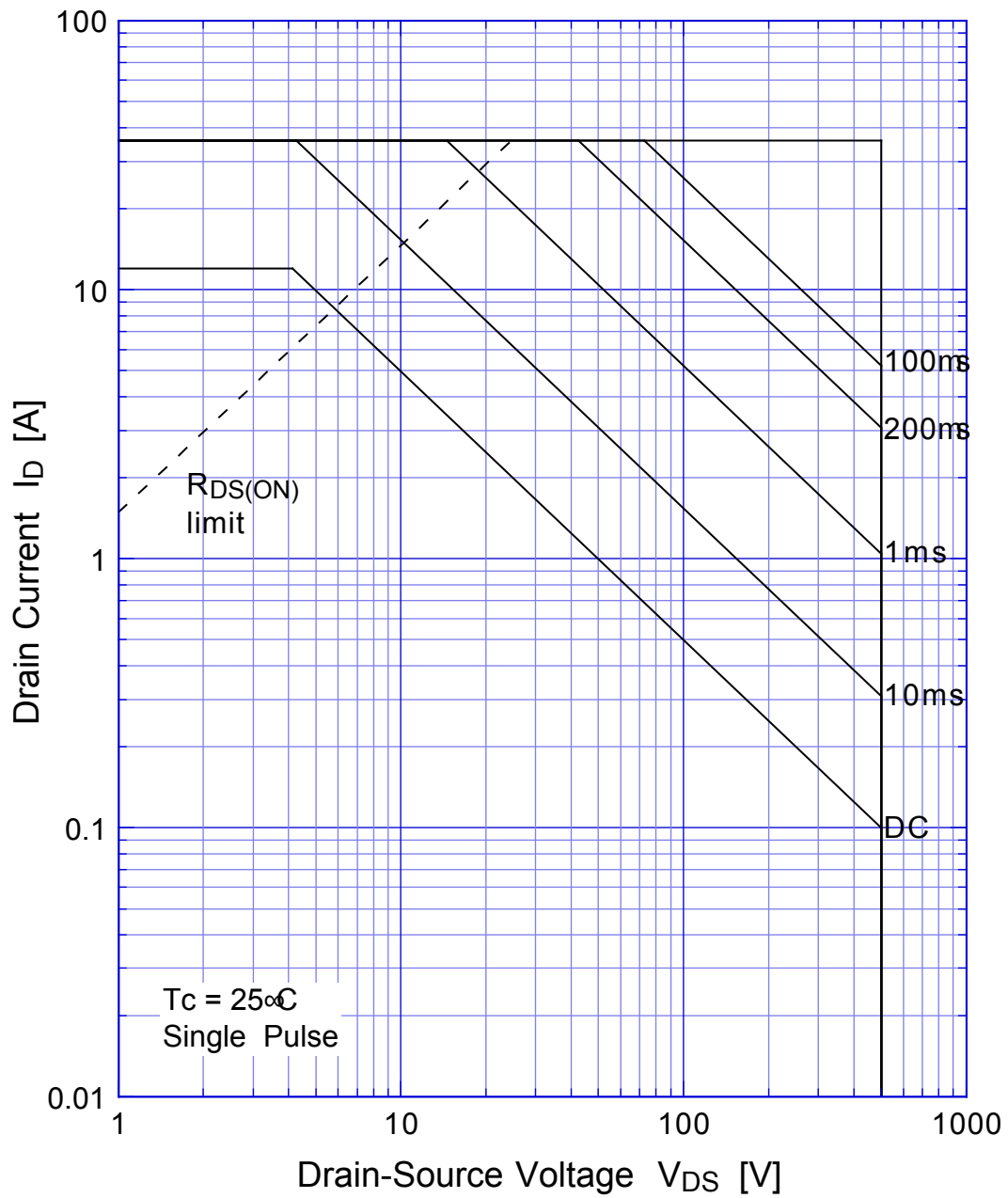


2SK2475 Gate Threshold Voltage

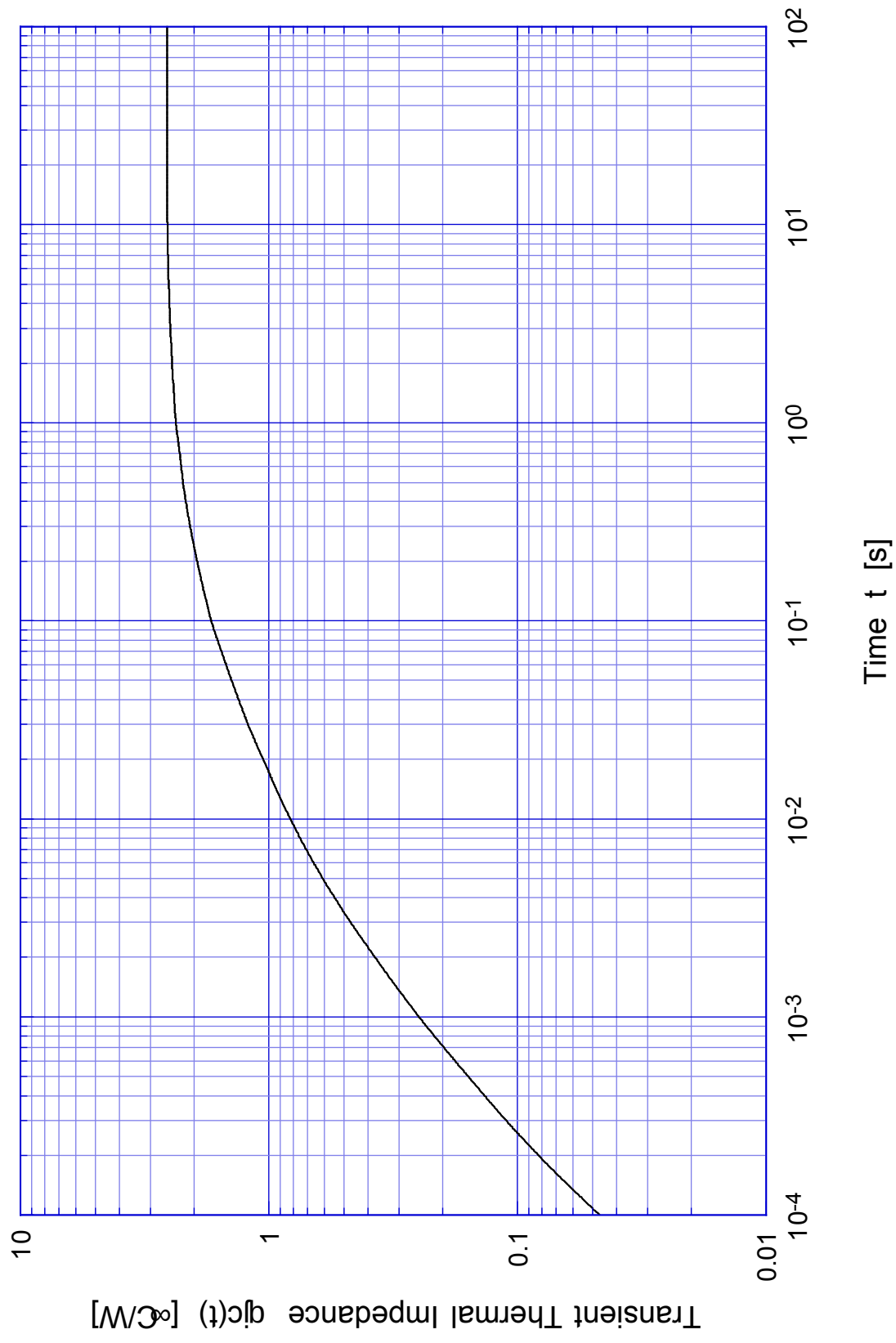


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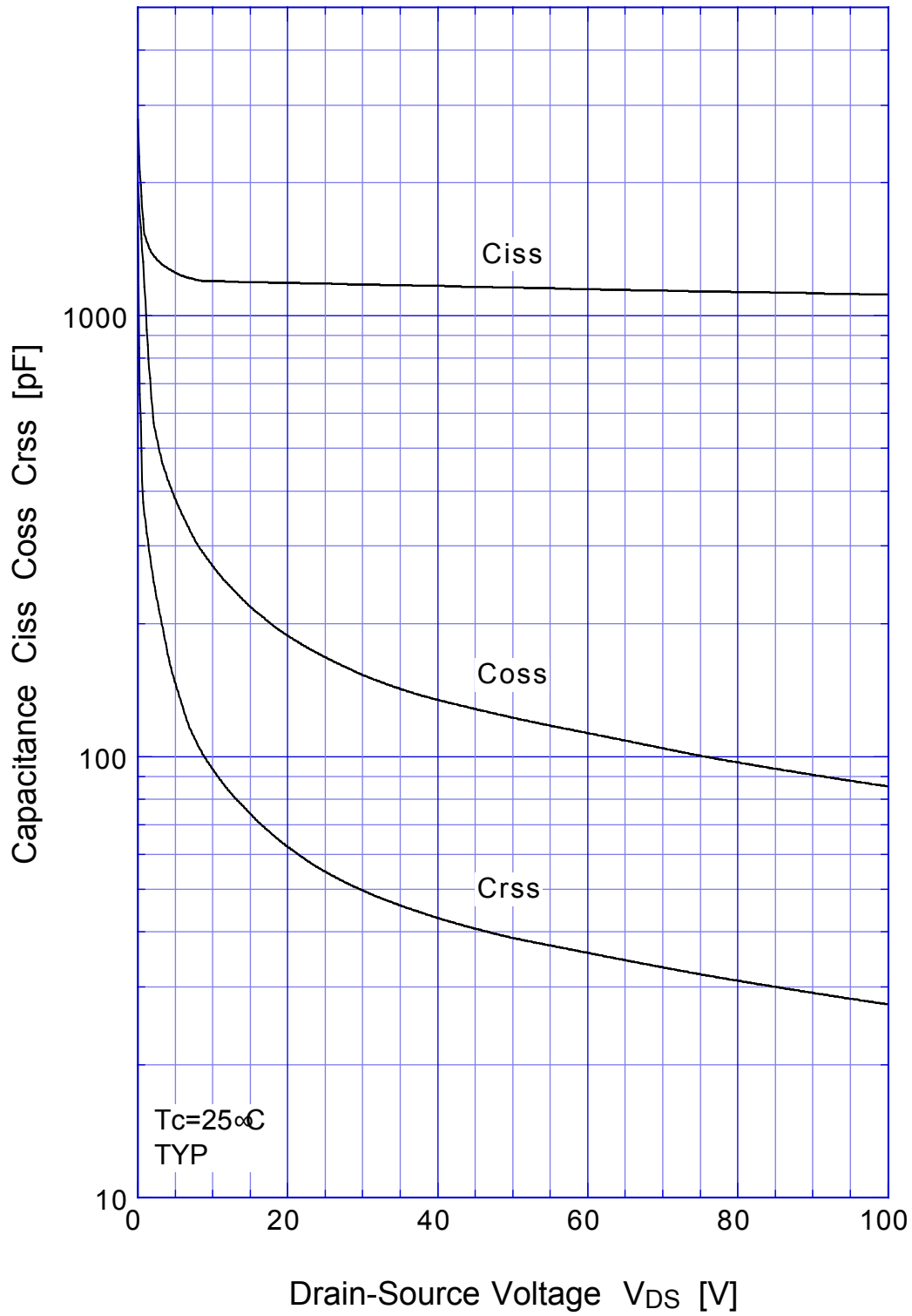
Safe Operating Area



2SK2475 Transient Thermal Impedance

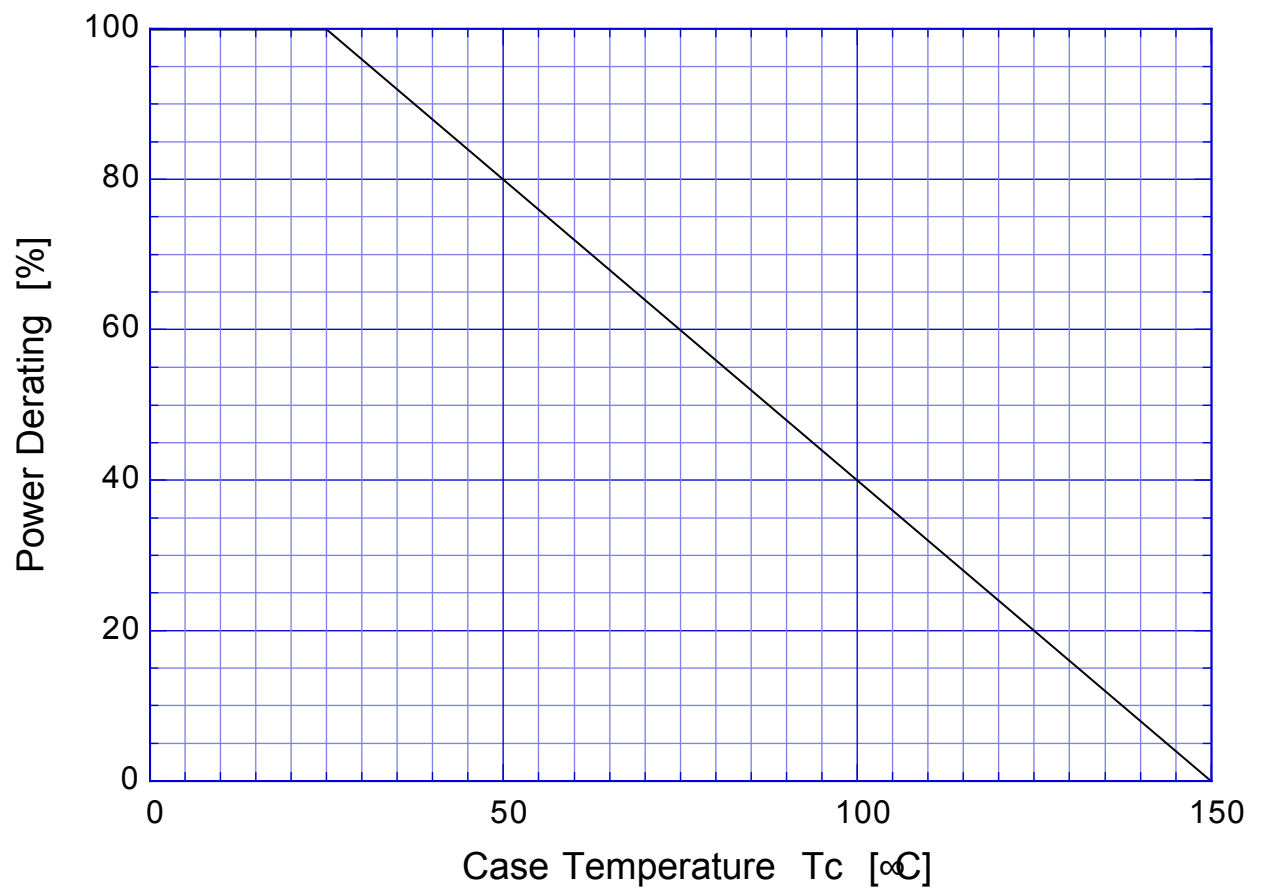


2SK2475 Capacitance



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Power Derating



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Gate Charge Characteristics

