

SHINDENGEN

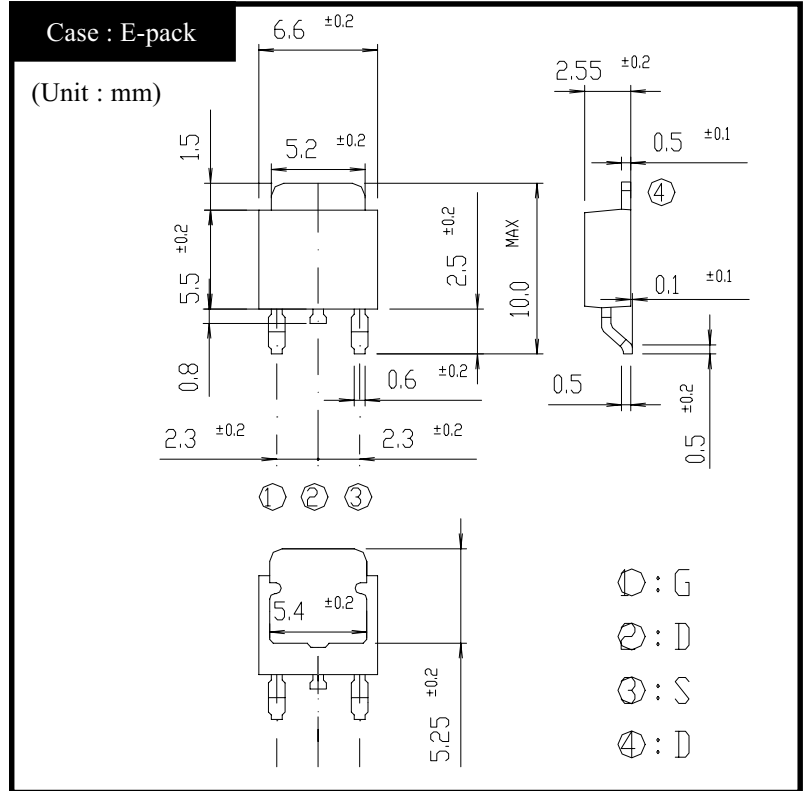
VR Series Power MOSFET

N-Channel Enhancement type

2SK1861
(F04E15L)

150V 4A

OUTLINE DIMENSIONS



RATINGS

Absolute Maximum Ratings (Tc = 25°C)

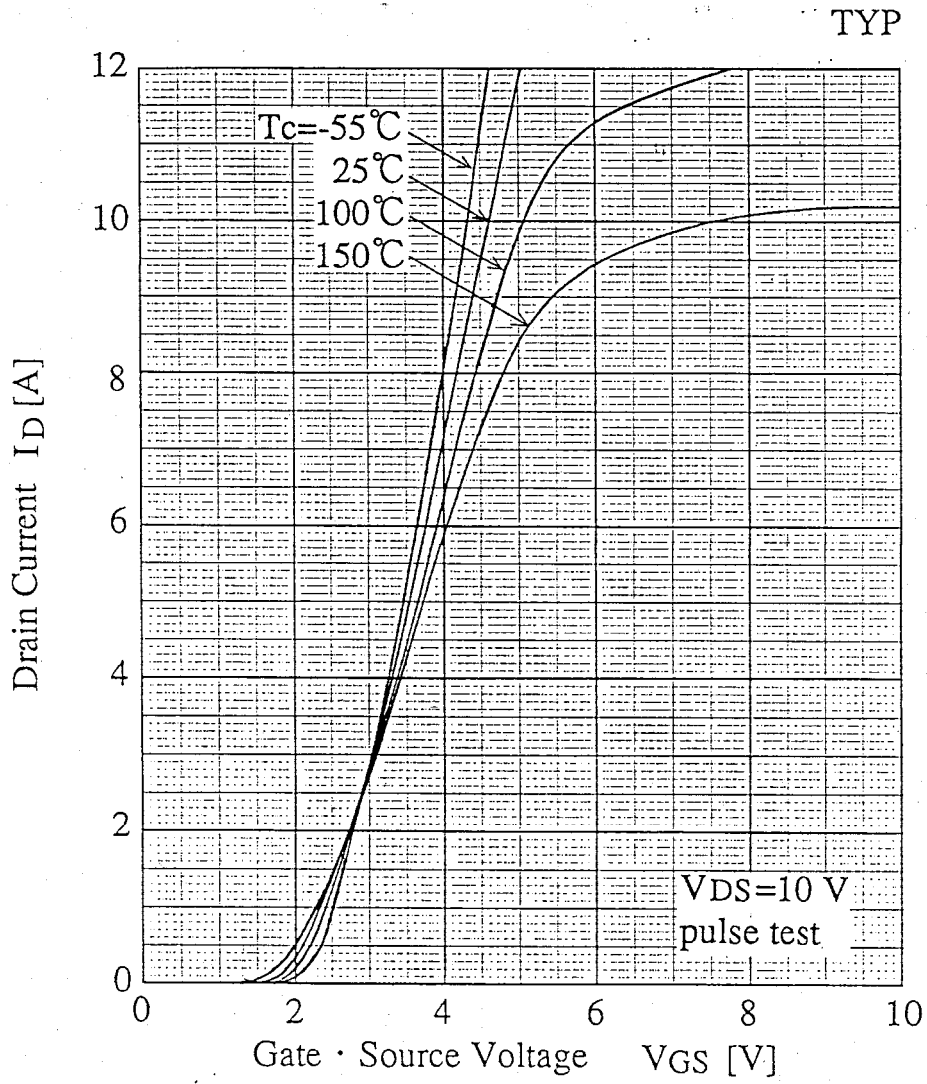
Item	Symbol	Conditions	Ratings	Unit
Storage Temperature	T _{stg}		-55 to 150	°C
Channel Temperature	T _{ch}		150	
Drain-Source Voltage	V _{DSS}		150	V
Gate-Source Voltage	V _{GSS}		±20	
Continuous Drain Current (DC)	I _D		4	A
Continuous Drain Current (Peak)	I _{DP}		12	
Continuous Source Current (DC)	I _S		4	
Total Power Dissipation	P _T		10	W

Electrical Characteristics Tc = 25°C

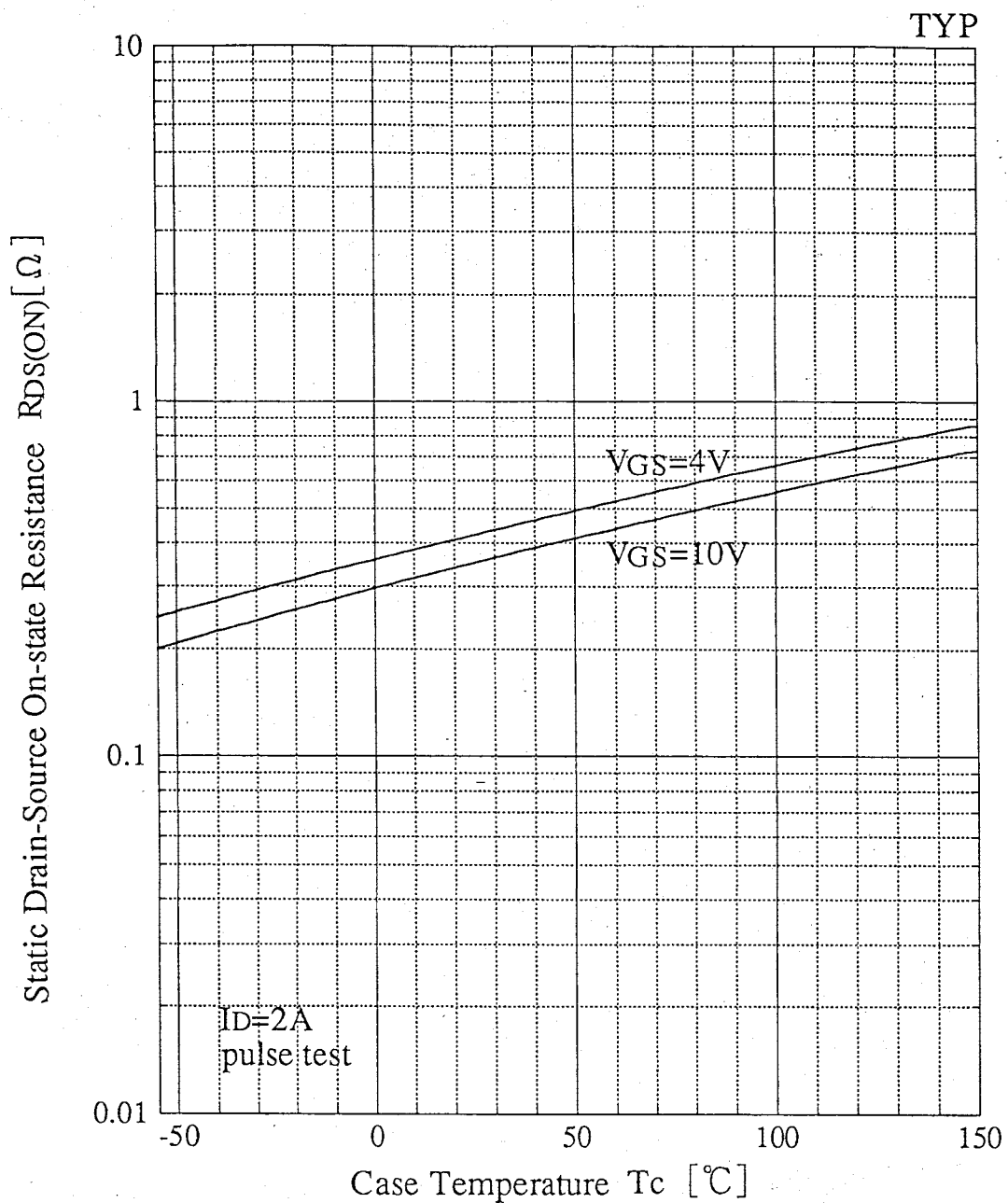
Item	Symbol	Conditions	Min.	Typ.	Max.	Unit
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$I_D = 1\text{mA}, V_{GS} = 0\text{V}$	150			V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = 150\text{V}, V_{GS} = 0\text{V}$			250	μA
Gate-Source Leakage Current	I_{GSS}	$V_{GS} = \pm 20\text{V}, V_{DS} = 0\text{V}$			± 10	
Forward Transconductance	g_{fs}	$I_D = 2\text{A}, V_{DS} = 10\text{V}$	1.8	3.6		S
Static Drain-Source On-state Resistance	$R_{DS(ON)}$	$I_D = 2\text{A}, V_{GS} = 4\text{V}$		0.42	0.6	Ω
		$I_D = 2\text{A}, V_{GS} = 10\text{V}$		0.35	0.5	
Gate Threshold Voltage	V_{TH}	$I_D = 1\text{mA}, V_{DS} = 10\text{V}$	1.0	1.5	2.0	V
Source-Drain Diode Forward Voltage	V_{SD}	$I_S = 4\text{A}, V_{GS} = 0\text{V}$			1.5	
Thermal Resistance	θ_{jc}	junction to case			12.5	$^{\circ}\text{C/W}$
Total Gate Charge	Q_g	$V_{GS} = 10\text{V}, I_D = 4\text{A}, V_{DD} = 100\text{V}$		21		nC
Input Capacitance	C_{iss}	$V_{DS} = 10\text{V}, V_{GS} = 0\text{V}, f = 1\text{MHz}$		480		pF
Reverse Transfer Capacitance	C_{rss}			50		
Output Capacitance	C_{oss}			160		
Turn-On Time	t_{on}	$I_D = 2\text{A},$		60	120	ns
Turn-Off Time	t_{off}	$R_L = 50\Omega, V_{GS} = 5\text{V}$		120	240	

2SK1861

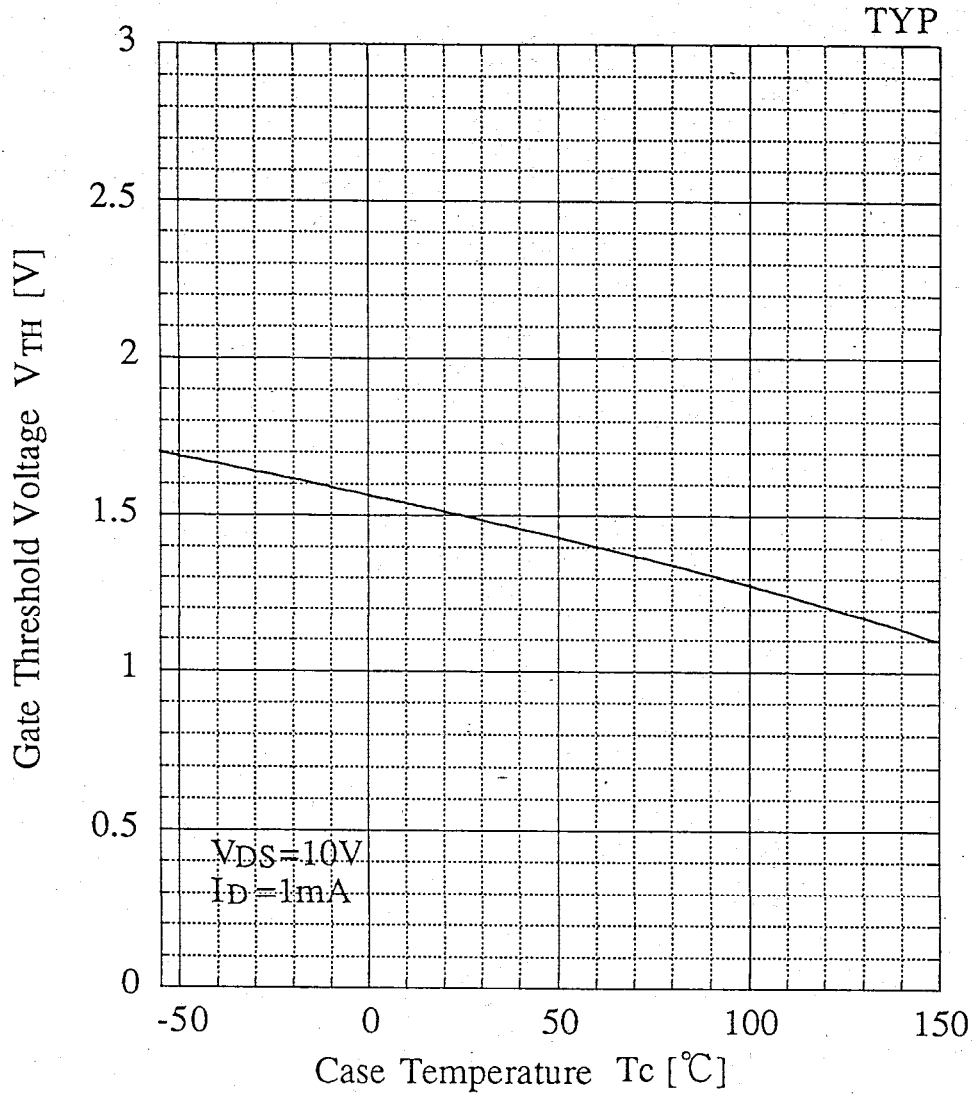
Transfer Characteristics



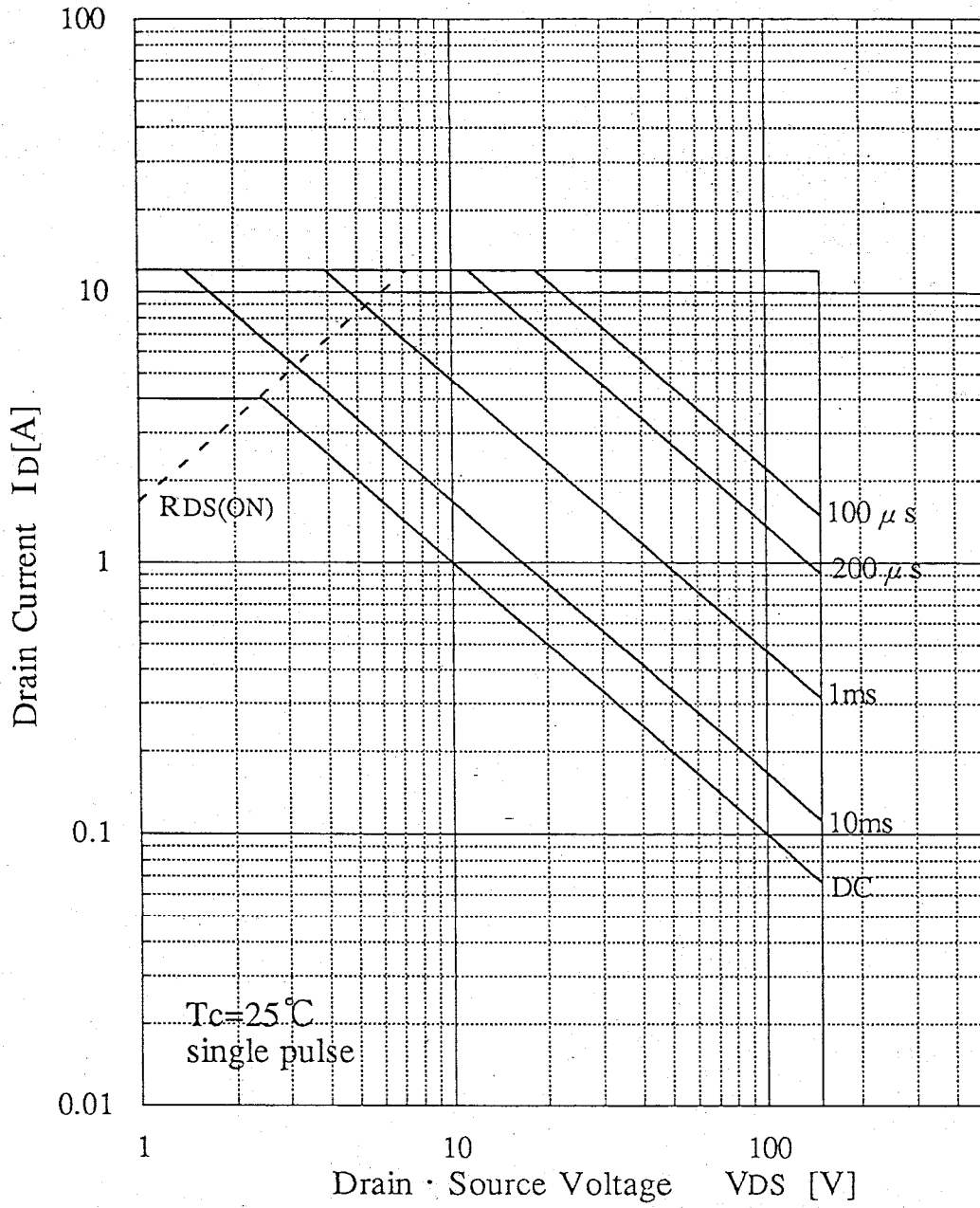
2SK1861 Static Drain-Source On-state Resistance



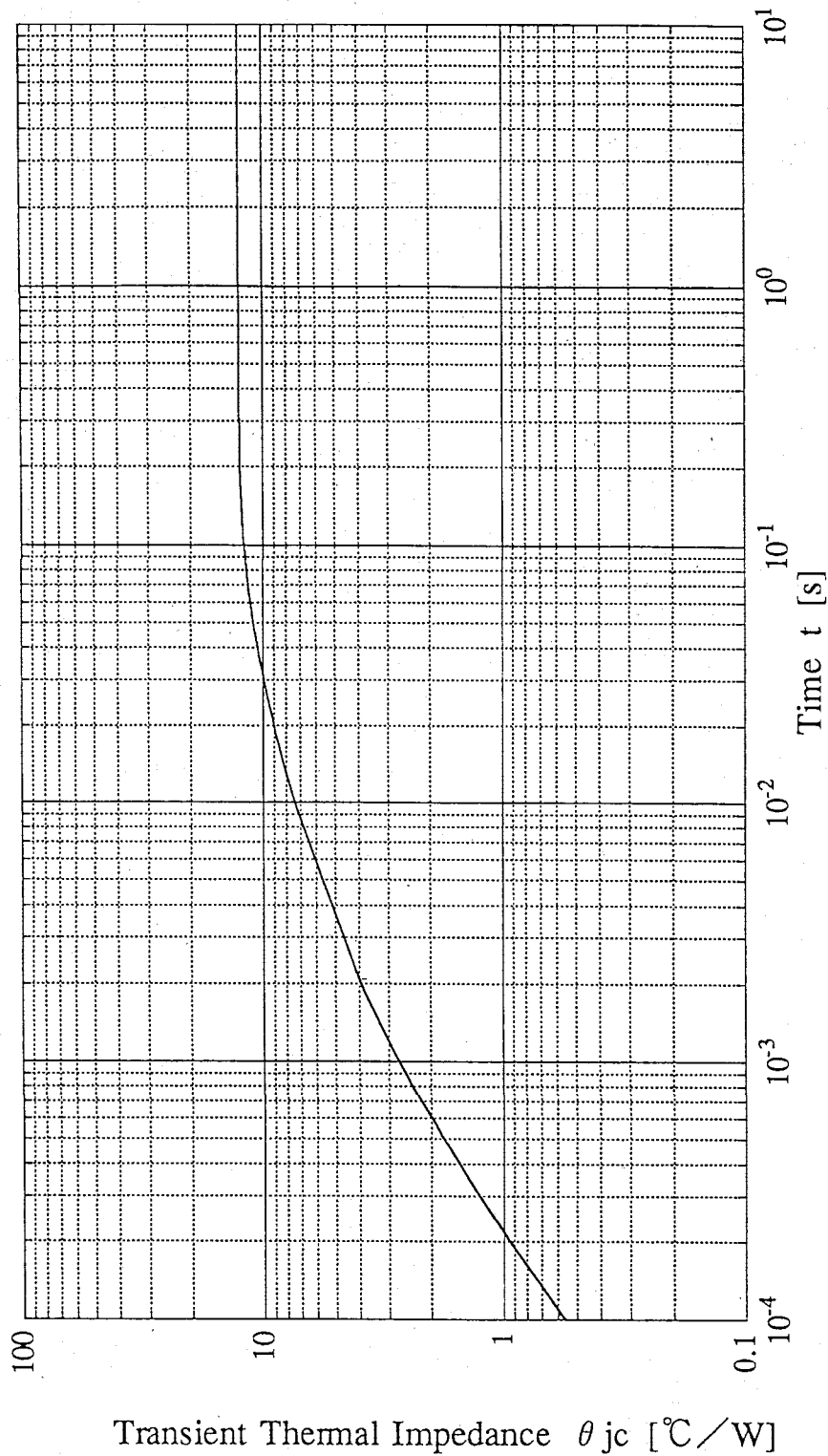
2SK1861 Gate Threshold Voltage

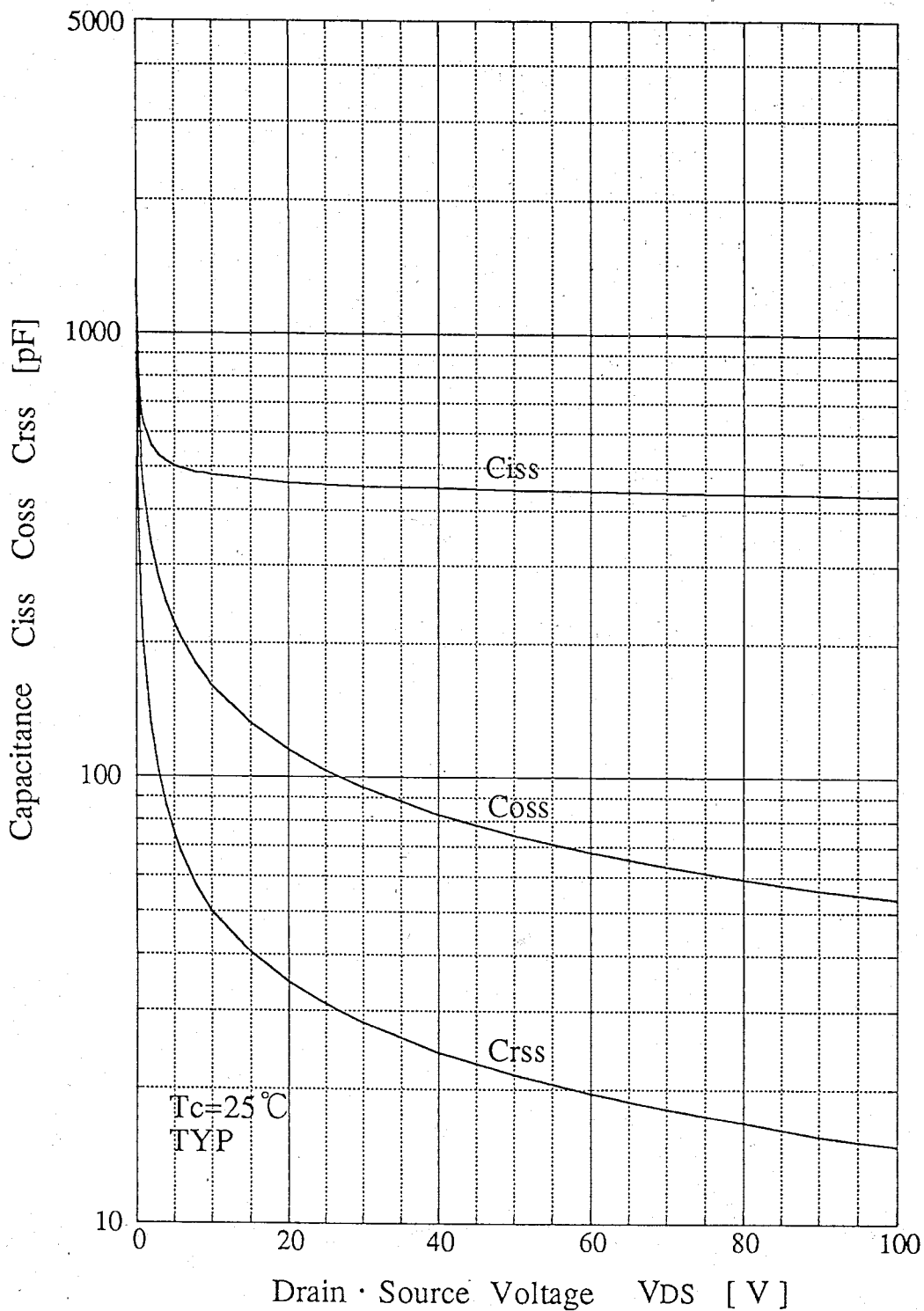


2SK1861 Safe Operating Area

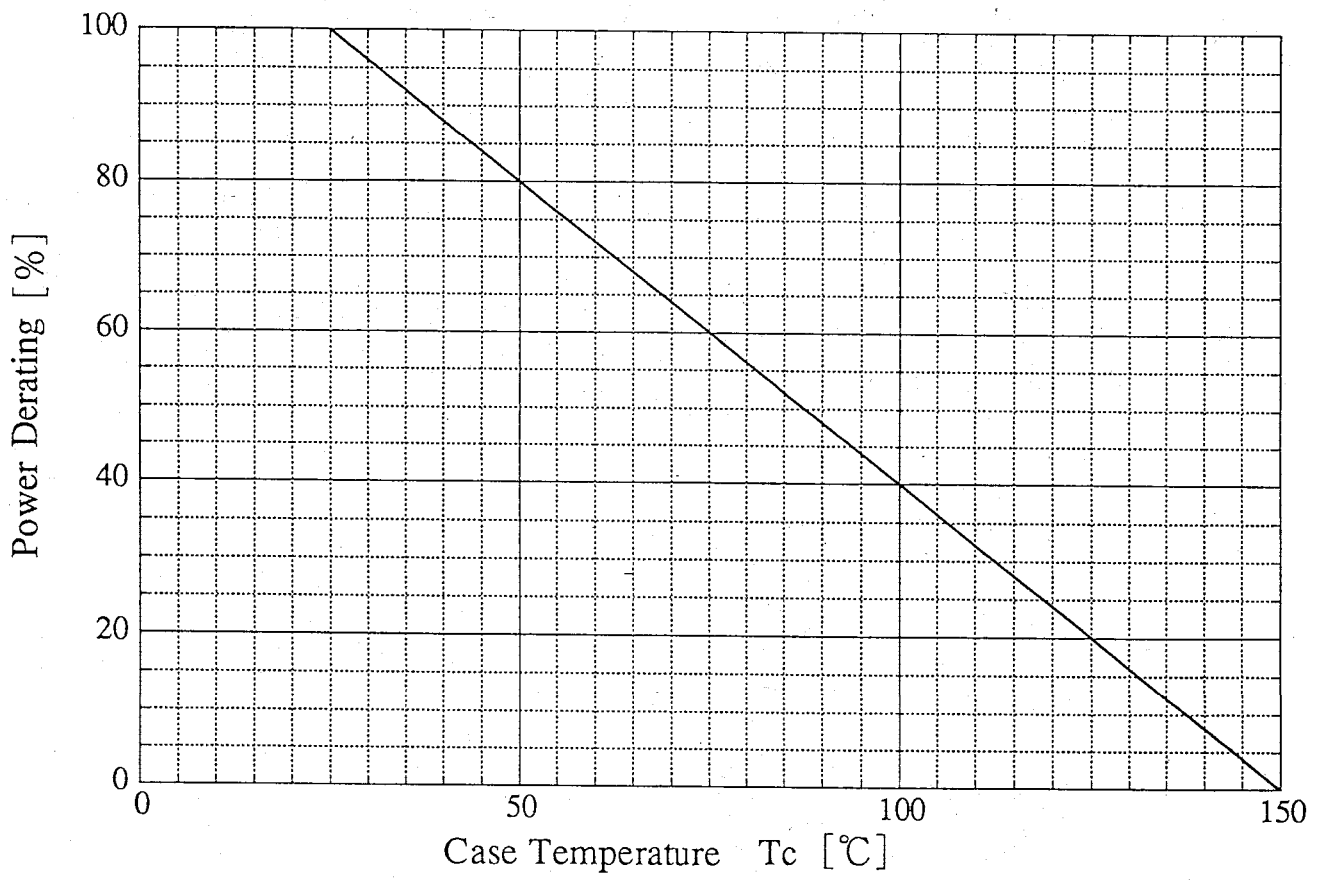


2SK1861 Transient Thermal Impedance





2SK1861 Power Derating



2SK1861 Gate Charge Characteristics

