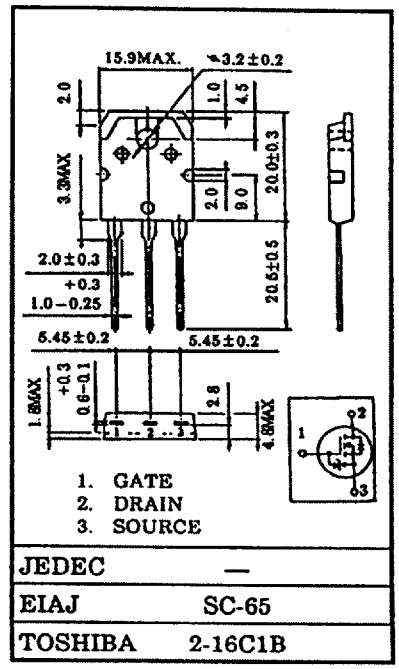
TOSHIBA

Discrete Semiconductors **2SK2149**

Silicon N Channel MOS Type (π - MOS IV)

Unit in mm



JEDEC	—
EIAJ	SC-65
TOSHIBA	2-16C1B

Weight : 4.6g

High Speed, High Current Switching Applications.
Chopper Regulator, DC-DC Converter and Motor Drive Applications.

- Low Drain-Source ON Resistance: $R_{DS(ON)}$ = 0.6Ω (Typ.)
- High Forward Transfer Admittance: $|Y_{fs}|$ = 6.9S (Typ.)
- Low Leakage Current: I_{DSS} = 100 μA (Max.) (V_{DS} = 500V)
- Enhancement Mode: V_{th} = 2.0 ~ 4.0V (V_{DS} = 10V, I_D = 1 mA)

Maximum Ratings (T_a = 25°C)

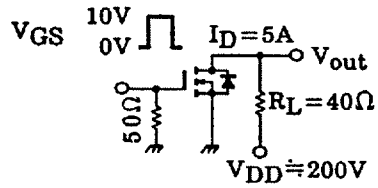
Characteristic		Symbol	Rating	Unit
Drain-Source Voltage		V_{DSS}	500	V
Drain-Gate Voltage (R_{GS} = 20 kΩ)		V_{DGR}	500	V
Gate-Source Voltage		V_{GSS}	±30	V
Drain Current	DC	I_D	10	A
	Pulse	I_{DP}	40	A
Drain Power Dissipation (T_c = 25°C)		P_D	125	W
Channel Temperature		T_{ch}	150	°C
Storage Temperature Range		T_{stg}	−55 ~ 150	°C

Thermal Characteristics

Characteristic	Symbol	Max.	Unit
Thermal Resistance, Channel to Case	$R_{th(ch-c)}$	1.0	°C/W
Thermal Resistance, Channel to Ambient	$R_{th(ch-a)}$	50	°C/W

This transistor is an electrostatic sensitive device.
Please Handle With Caution.

Electrical Characteristics (T_a = 25°C)

Characteristic		Symbol	Test Condition	Min.	Typ.	Max.	Unit
Gate Leakage Current		I_{GSS}	V_{GS} = ±25V, V_{DS} = 0V	–	–	±10	μA
Gate-Source Breakdown Voltage		$V_{(BR)GSS}$	I_G = ±100 μA, V_{DS} = 0V	±30	–	–	–
Drain Cut-Off Current		I_{DSS}	V_{DS} = 500V, V_{GS} = 0V	–	–	100	μA
Drain-Source Breakdown Voltage		$V_{(BR)DSS}$	I_D = 10 mA, V_{GS} = 0V	500	–	–	V
Gate Threshold Voltage		V_{th}	V_{DS} = 10V, I_D = 1 mA	2.0	–	4.0	V
Drain-Source ON Resistance		$R_{DS(ON)}$	V_{GS} = 10V, I_D = 5A	–	0.6	0.8	Ω
Forward Transfer Admittance		$\|Y_{fs}\|$	V_{DS} = 10V, I_D = 5A	4.5	6.9	–	S
Input Capacitance		C_{iss}	V_{DS} = 10V, V_{GS} = 0V f = 1 MHz	–	1240	–	pF
Reverse Transfer Capacitance		C_{rss}		–	100	–	
Output Capacitance		C_{oss}		–	380	–	
Switching Timing	Rise Time	t_r	 V_{IN} : t_r, t_f < 5ns Duty ≦ 1%, t_w = 10μs	–	12	–	ns
	Turn-on Time	t_{on}		–	45	–	
	Fall Time	t_f		–	20	–	
	Turn-off Time	t_{off}		–	120	–	
Total Gate Charge (Gate-Source Plus Gate-Drain)		Q_g	V_{DD} = 400V, V_{GS} = 10V I_D = 10A	–	30	–	nC
Gate-Source Charge		Q_{gs}		–	20	–	
Gate-Drain ("Miller") Charge		Q_{gd}		–	10	–	

Source-Drain Diode Ratings and Characteristics (T_a = 25°C)

Characteristic	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Continuous Drain Reverse Current	I_{DR}	–	–	–	10	A
Pulse Drain Reverse Current	I_{DRP}	–	–	–	40	A
Diode Forward Voltage	V_{DSF}	I_{DR} = 10A, V_{GS} = 0V	–	–	–1.7	V
Reverse Recovery Time	t_{rr}	I_{DR} = 10A, V_{GS} = 0V dI_{DR} / dt = 100A / μs	–	450	–	ns
Reverse Recovery Charge	Q_{rr}		–	4.0	–	μC