

TOSHIBA FIELD EFFECT TRANSISTOR SILICON N CHANNEL MOS TYPE (π -MOS V)

2SK3342

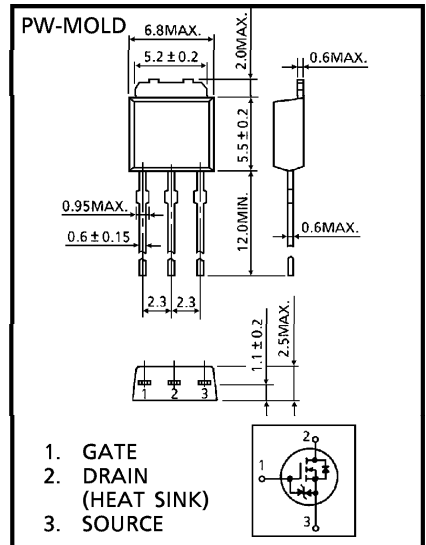
HIGH SPEED, HIGH VOLTAGE SWITCHING APPLICATIONS

SWITCHING REGULATOR APPLICATIONS, DC-DC CONVERTER AND MOTOR DRIVE APPLICATIONS

INDUSTRIAL APPLICATIONS

Unit in mm

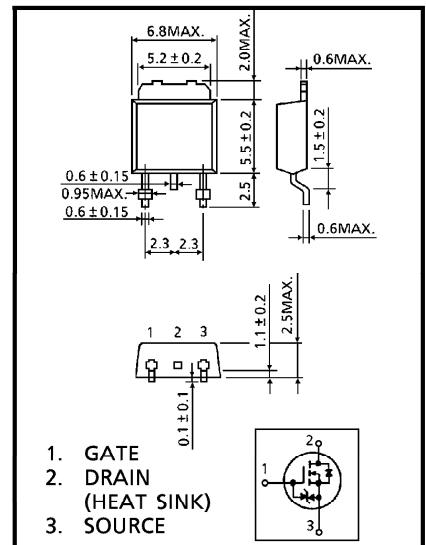
- Low Drain-Source ON Resistance : $R_{DS(ON)} = 0.8 \Omega$ (Typ.)
- High Forward Transfer Admittance : $|Y_{fs}| = 4.5 S$ (Typ.)
- Low Leakage Current : $I_{DSS} = 100 \mu A$ (Max.) ($V_{DS} = 250 V$)
- Enhancement-Mode : $V_{th} = 1.5 \sim 3.5 V$
($V_{DS} = 10 V, I_D = 1 mA$)



JEDEC	—
EIAJ	SC-64
TOSHIBA	2-7B1B

MAXIMUM RATINGS ($T_a = 25^\circ C$)

CHARACTERISTIC		SYMBOL	RATING	UNIT
Drain-Source Voltage		V_{DSS}	250	V
Drain-Gate Voltage ($R_{GS} = 20 k\Omega$)		V_{DGR}	250	V
Gate-Source Voltage		V_{GSS}	± 20	V
Drain Current	DC	I_D	4.5	A
	Pulse	I_{DP}	18	A
Drain Power Dissipation ($T_c = 25^\circ C$)		P_D	20	W
Single Pulse Avalanche Energy**		E_{AS}	51	mJ
Avalanche Current		I_{AR}	4.5	A
Repetitive Avalanche Energy*		E_{AR}	2.0	mJ
Channel Temperature		T_{ch}	150	$^\circ C$
Storage Temperature Range		T_{stg}	$-55 \sim 150$	$^\circ C$



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THERMAL CHARACTERISTICS

CHARACTERISTIC	SYMBOL	MAX.	UNIT
Thermal Resistance, Channel to Case	$R_{th(ch-c)}$	6.25	$^\circ C/W$
Thermal Resistance, Channel to Ambient	$R_{th(ch-a)}$	125	$^\circ C/W$

Note ;

- * Repetitive rating ; Pulse Width Limited by Max. junction temperature.
- ** $V_{DD} = 50 V, T_{ch} = 25^\circ C$ (initial), $L = 4.28 mH, R_G = 25 \Omega, I_{AR} = 4.5 A$

This transistor is an electrostatic sensitive device. Please handle with caution.

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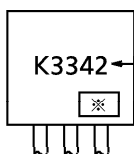
ELECTRICAL CHARACTERISTICS (Ta = 25°C)

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT	
Gate Leakage Current	I _{GSS}	V _{GS} = ±16 V, V _{DS} = 0 V	—	—	±10	μA	
Drain Cut-off Current	I _{DSS}	V _{DS} = 250 V, V _{GS} = 0 V	—	—	100	μA	
Drain-Source Breakdown Voltage	V _{(BR) DSS}	I _D = 10 mA, V _{GS} = 0 V	250	—	—	V	
Gate Threshold Voltage	V _{th}	V _{DS} = 10 V, I _D = 1 mA	1.5	—	3.5	V	
Drain-Source ON Resistance	R _{DS (ON)}	V _{GS} = 10 V, I _D = 2.5 A	—	0.8	1.0	Ω	
Forward Transfer Admittance	Y _{fs}	V _{DS} = 10 V, I _D = 2.5 A	2.0	4.5	—	S	
Input Capacitance	C _{iss}	V _{DS} = 10 V, V _{GS} = 0 V, f = 1 MHz	—	440	—	pF	
Reverse Transfer Capacitance	C _{rss}		—	35	—		
Output Capacitance	C _{oss}		—	120	—		
Switching Time	Rise Time	t _r		—	15	—	ns
	Turn-on Time	t _{on}		—	20	—	
	Fall Time	t _f		—	15	—	
	Turn-off Time	t _{off}		V _{IN} : t _r , t _f < 5 ns, Duty ≤ 1%, t _w = 10 μs	—	60	
Total Gate Charge (Gate-Source Plus Gate-Drain)	Q _g	V _{DD} ≐ 100 V, V _{GS} = 10 V, I _D = 4.5 A	—	10	—	nC	
Gate-Source Charge	Q _{gs}		—	6	—		
Gate-Drain (“Miller”) Charge	Q _{gd}		—	4	—		

SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS (Ta = 25°C)

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Continuous Drain Reverse Current	I _{DR}	—	—	—	4.5	A
Pulse Drain Reverse Current	I _{DRP}	—	—	—	18	A
Diode Forward Voltage	V _{DSSF}	I _{DR} = 4.5 A, V _{GS} = 0 V	—	—	-2.0	V
Reverse Recovery Time	t _{rr}	I _{DR} = 4.5 A, V _{GS} = 0 V dI _{DR} /dt = 100 A/μs	—	110	—	ns
Reverse Recovery Charge	Q _{rr}		—	0.47	—	μC

MARKING



※ Lot Number



Month (Starting from Alphabet A)

Year (Last Number of the Christian Era)

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