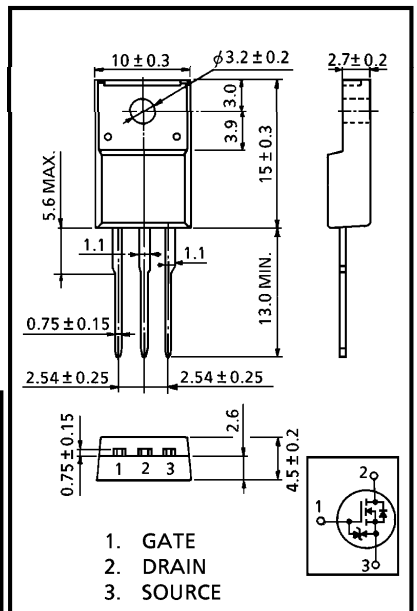
2SK2466

HIGH SPEED, HIGH CURRENT SWITCHING APPLICATIONS

CHOPPER REGULATOR, DC-DC CONVERTER AND MOTOR DRIVE APPLICATIONS

INDUSTRIAL APPLICATIONS

Unit in mm



JEDEC	—
EIAJ	SC-67
TOSHIBA	2-10R1B

Weight : 1.9g

- 4V Gate Drive
- Low Drain-Sorce ON Resistance : $R_{DS(ON)}=34m\Omega$ (Typ.)
- High Forward Transfer Admittance : $|Y_{fs}|=30S$ (Typ.)
- Low Leakage Current : $I_{DSS}=100\mu A$ (Max.) ($V_{DS}=100V$)
- Enhancement-Mode : $V_{th}=0.8\sim2.0V$ ($V_{DS}=10V$, $I_D=1mA$)

MAXIMUM RATINGS (Ta = 25°C)

CHARACTERISTIC		SYMBOL	RATING	UNIT
Drain-Source Voltage		V_{DSS}	100	V
Drain-Gate Voltage ($R_{GS}=20k\Omega$)		V_{DGR}	100	V
Gate-Source Voltage		V_{GSS}	±20	V
Drain Current	DC	I_D	30	A
	Pulse	I_{DP}	120	
Drain Power Dissipation (Tc=25°C)		P_D	40	W
Single Pulse Avalanche Energy**		E_{AS}	293	mJ
Avalanche Current		I_{AR}	30	A
Repetitive Avalanche Energy*		E_{AR}	4	mJ
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	$R_{th(ch-c)}$	3.125	°C / W
Thermal Resistance, Channel to Ambient	$R_{th(ch-a)}$	62.5	°C / W

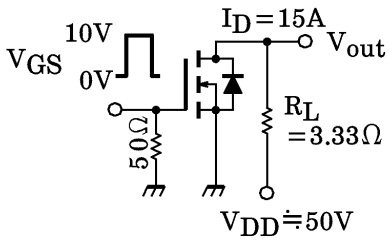
Note ;

* Repetitive rating ; Pulse Width Limited by Max. junction temperature.

** $V_{DD}=25V$, Starting $T_{ch}=25°C$, $L=525\mu H$, $R_G=25\Omega$, $I_{AR}=30A$

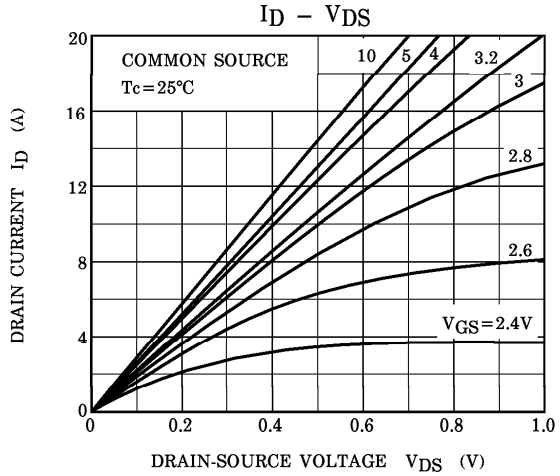
This transistor is an electrostatic sensitive device.
Please handle with caution.

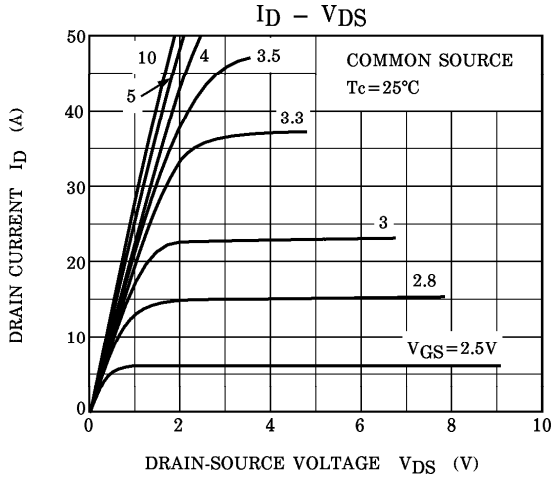
ELECTRICAL CHARACTERISTICS (Ta = 25°C)

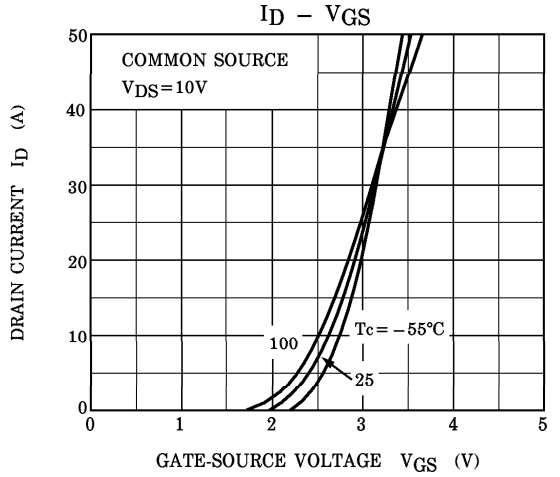
CHARACTERISTIC		SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Gate Leakage Current		I_{GSS}	$V_{GS} = \pm 16V$, $V_{DS} = 0V$	—	—	±20	μA
Drain Cut-off Current		I_{DSS}	$V_{DS} = 100V$, $V_{GS} = 0V$	—	—	100	μA
Drain-Source Breakdown Voltage		$V_{(BR)DSS}$	$I_D = 10mA$, $V_{GS} = 0V$	100	—	—	V
Gate Threshold Voltage		V_{th}	$V_{DS} = 10V$, $I_D = 1mA$	0.8	—	2.0	V
Drain-Source ON Resistance		$R_{DS(ON)}$	$V_{GS} = 4V$, $I_D = 15A$	—	40	70	mΩ
			$V_{GS} = 10V$, $I_D = 15A$	—	34	46	
Forward Transfer Admittance		$\|Y_{fs}\|$	$V_{DS} = 10V$, $I_D = 15A$	13	30	—	S
Input Capacitance		C_{iss}	$V_{DS} = 10V$, $V_{GS} = 0V$, f = 1MHz	—	3250	—	pF
Reverse Transfer Capacitance		C_{rss}		—	230	—	
Output Capacitance		C_{oss}		—	520	—	
Switching Time	Rise Time	t_r	 V_{IN} : t_r, $t_f < 5ns$, Duty ≦ 1%, $t_w = 10\mu s$	—	33	—	ns
	Turn-on Time	t_{on}		—	60	—	
	Fall Time	t_f		—	95	—	
	Turn-off Time	t_{off}		—	230	—	
Total Gate Charge (Gate-Source Plus Gate-Drain)		Q_g	$V_{DD} \fallingdotseq 80V$, $V_{GS} = 10V$, $I_D = 30A$	—	68	—	nC
Gate-Source Charge		Q_{gs}		—	46	—	
Gate-Drain ("Miller") Charge		Q_{gd}		—	22	—	

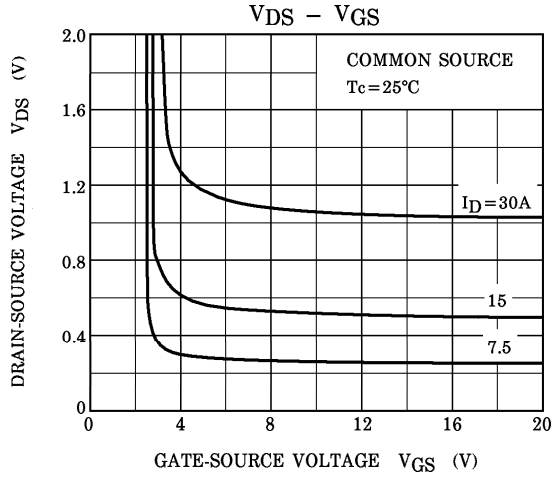
SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS (Ta = 25°C)

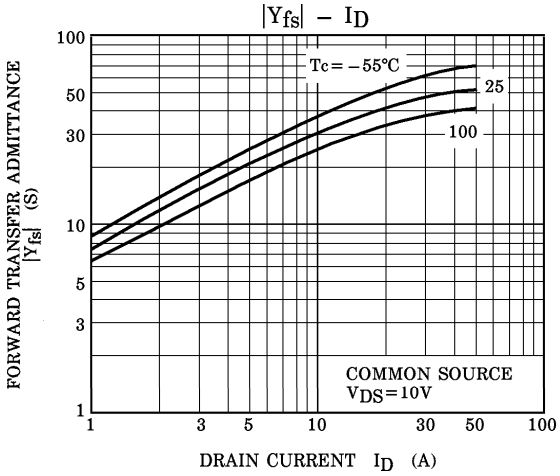
CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Continuous Drain Reverse Current	I_{DR}	—	—	—	30	A
Pulse Drain Reverse Current	I_{DRP}	—	—	—	120	A
Diode Forward Voltage	V_{DSF}	$I_{DR} = 30A$, $V_{GS} = 0V$	—	—	−1.7	V
Reverse Recovery Time	t_{rr}	$I_{DR} = 30A$, $V_{GS} = 0V$	—	120	—	ns
Reverse Recovery Charge	Q_{rr}	$dI_{DR}/dt = 50A/\mu s$	—	280	—	nC

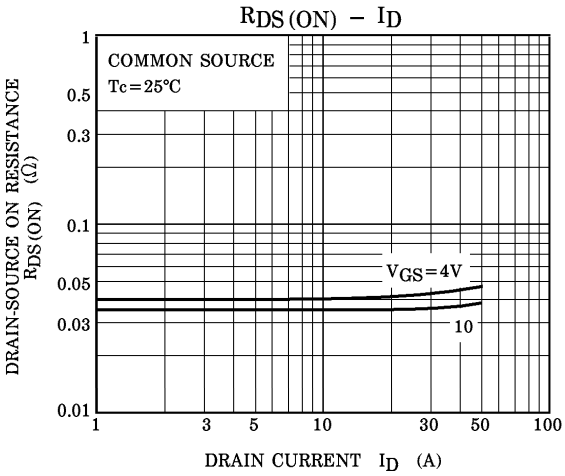

ID – VDS
COMMON SOURCE
Tc=25°C
10
5
4
3.2
3
2.8
2.6
VGS=2.4V
DRAIN CURRENT ID (A)
DRAIN-SOURCE VOLTAGE VDS (V)
0
4
8
12
16
20
0
0.2
0.4
0.6
0.8
1.0


ID – VDS
COMMON SOURCE
Tc=25°C
10
5
4
3.5
3.3
3
2.8
VGS=2.5V
DRAIN CURRENT ID (A)
DRAIN-SOURCE VOLTAGE VDS (V)
0
10
20
30
40
50
0
2
4
6
8
10


ID – VGS
COMMON SOURCE
VDS=10V
100
Tc=−55°C
25
DRAIN CURRENT ID (A)
GATE-SOURCE VOLTAGE VGS (V)
0
10
20
30
40
50
0
1
2
3
4
5


VDS – VGS
COMMON SOURCE
Tc=25°C
ID=30A
15
7.5
DRAIN-SOURCE VOLTAGE VDS (V)
GATE-SOURCE VOLTAGE VGS (V)
0
0.4
0.8
1.2
1.6
2.0
0
4
8
12
16
20


|Yfs| – ID
Tc=−55°C
25
100
COMMON SOURCE
VDS=10V
FORWARD TRANSFER ADMITTANCE
|Yfs| (S)
DRAIN CURRENT ID (A)
1
3
5
10
30
50
100
1
3
5
10
30
50
100


RDS (ON) – ID
COMMON SOURCE
Tc=25°C
VGS=4V
10
DRAIN-SOURCE ON RESISTANCE
RDS (ON) (Ω)
DRAIN CURRENT ID (A)
0.01
0.03
0.05
0.1
0.3
0.5
1
1
3
5
10
30
50
100