TOSHIBA FIELD EFFECT TRANSISTOR SILICON N CHANNEL MOS TYPE (π-MOSIII.5)

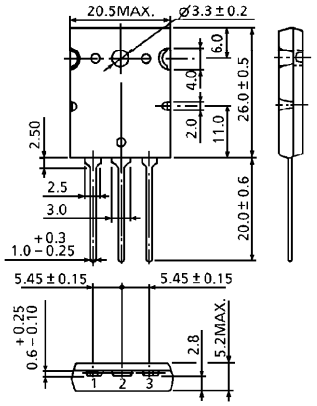
2SK1486

HIGH SPEED, HIGH CURRENT SWITCHING APPLICATIONS

CHOPPER REGULATOR, DC-DC CONVERTER AND MOTOR DRIVE APPLICATIONS

INDUSTRIAL APPLICATIONS

Unit in mm



1. GATE
2. DRAIN (HEAT SINK)
3. SOURCE

JEDEC	—
EIAJ	—
TOSHIBA	2-21F1B

Weight : 9.75g

- Low Drain-Source ON Resistance : $R_{DS\,(ON)}=0.08\Omega$ (Typ.)
- High Forward Transfer Admittance : $|Y_{fs}|=14S$ (Typ.)
- Low Leakage Current : $I_{DSS}=300\mu A$ (Max.) @$V_{DS}=300V$
- Enhancement-Mode : $V_{th}=2.0\sim4.0V$ @$V_{DS}=10V$, $I_D=1mA$

MAXIMUM RATINGS (Ta = 25°C)

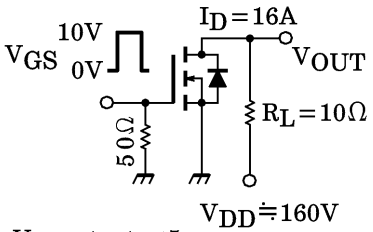
CHARACTERISTIC		SYMBOL	RATING	UNIT
Drain-Source Voltage		V_{DSS}	300	V
Drain-Gate Voltage ($R_{GS}=20k\Omega$)		V_{DGR}	300	V
Gate-Source Voltage		V_{GSS}	±30	V
Drain Current	DC	I_D	32	A
	Pulse	I_{DP}	128	
Drain Power Dissipation (Tc=25°C)		P_D	200	W
Channel Temperature		T_{ch}	150	°C
Storage Temperature Range		T_{stg}	−55~150	°C

THERMAL CHARACTERISTICS

CHARACTERISTIC	SYMBOL	MAX.	UNIT
Thermal Resistance, Channel to Case	$R_{th\,(ch-c)}$	0.625	°C/W
Thermal Resistance, Channel to Ambient	$R_{th\,(ch-a)}$	35.7	°C/W

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

ELECTRICAL CHARACTERISTICS (Ta = 25°C)

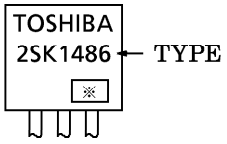
CHARACTERISTIC		SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Gate Leakage Current		I_{GSS}	$V_{GS}=\pm30V$, $V_{DS}=0V$	—	—	±100	nA
Drain Cut-off Current		I_{DSS}	$V_{DS}=300V$, $V_{GS}=0V$	—	—	300	μA
Drain-Source Breakdown Voltage		$V_{(BR)DSS}$	$I_D=10mA$, $V_{GS}=0V$	300	—	—	V
Gate Threshold Voltage		V_{th}	$V_{DS}=10V$, $I_D=1mA$	2.0	—	4.0	V
Drain-Source ON Resistance		$R_{DS(ON)}$	$I_D=16A$, $V_{GS}=10V$	—	0.08	0.095	Ω
Forward Transfer Admittance		$\|Y_{fs}\|$	$V_{DS}=10V$, $I_D=16A$	10	14	—	S
Input Capacitance		C_{iss}	$V_{DS}=10V$, $V_{GS}=0V$, f=1MHz	—	3500	—	pF
Reverse Transfer Capacitance		C_{rss}		—	800	—	
Output Capacitance		C_{oss}		—	1250	—	
Switching Time	Rise Time	t_r		—	255	—	ns
	Turn-on Time	t_{on}		—	325	—	
	Fall Time	t_f		—	280	—	
	Turn-off Time	t_{off}		—	540	—	
Total Gate Charge (Gate-Source Plus Gate-Drain)		Q_g	$V_{DD}\fallingdotseq240V$, $V_{GS}=10V$, $I_D=32A$	—	140	—	nC
Gate-Source Charge		Q_{gs}		—	60	—	
Gate-Drain ("Miller") Charge		Q_{gd}		—	80	—	

V_{IN} : t_r, $t_f<5ns$,
Duty ≦ 1%, $t_w=10\mu s$

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

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Continuous Drain Reverse Current	I_{DR}	—	—	—	32	A
Pulse Drain Reverse Current	I_{DRP}	—	—	—	128	A
Diode Forward Voltage	V_{DSF}	$I_{DR}=32A$, $V_{GS}=0V$	—	—	−1.8	V
Reverse Recovery Time	t_{rr}	$I_{DR}=32A$, $V_{GS}=0V$	—	615	—	ns
Reverse Recovered Charge	Q_{rr}	$dI_{DR}/dt=100A/\mu s$	—	6.8	—	μC

MARKING

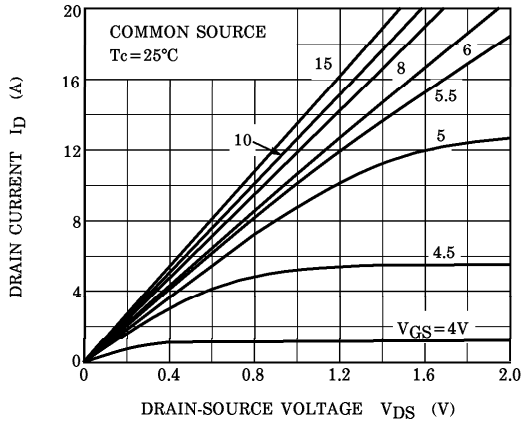


※ Lot Number

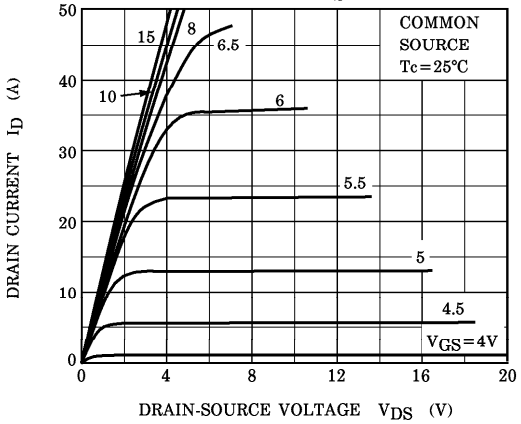
□□ — Month (Starting from Alphabet A)

— Year (Last Number of the Christian Era)

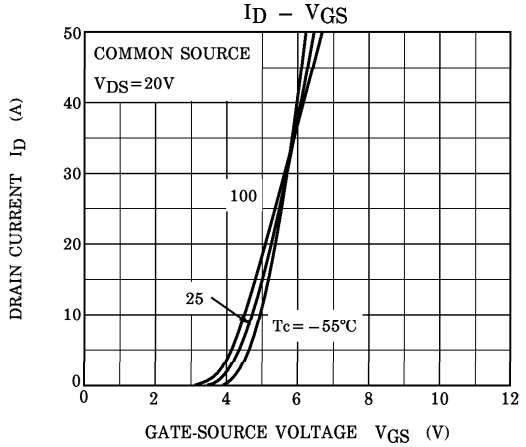
$I_D - V_{DS}$



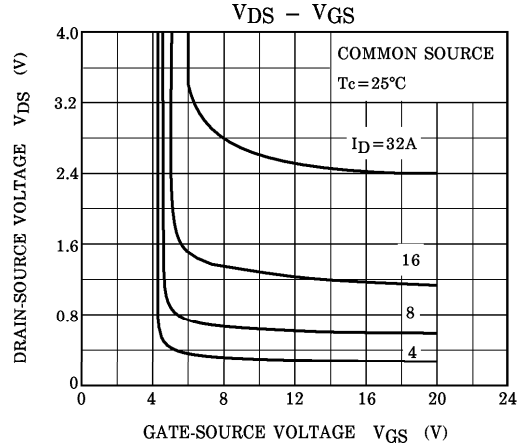
$I_D - V_{DS}$



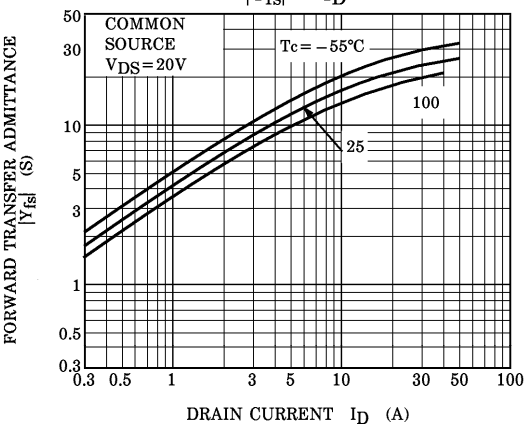
$I_D - V_{GS}$



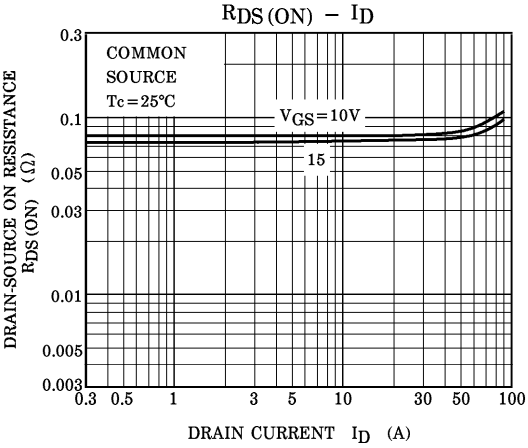
$V_{DS} - V_{GS}$



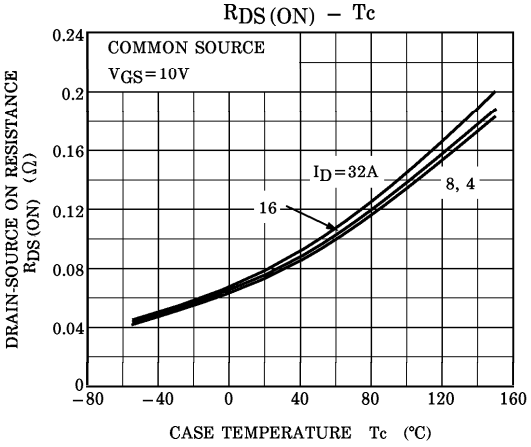
$|Y_{fs}| - I_D$



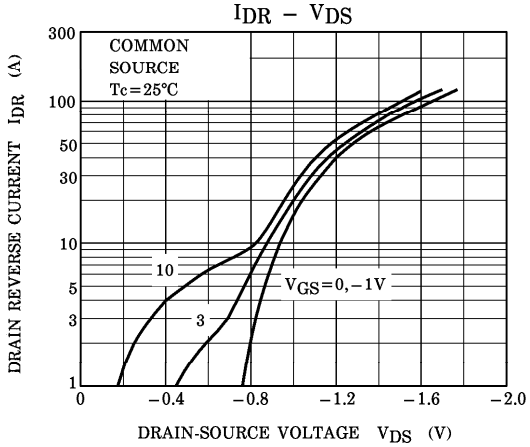
$R_{DS(ON)} - I_D$



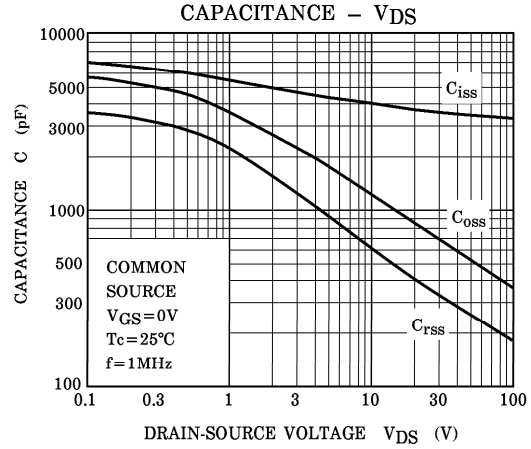
$R_{DS\,(ON)}$ – Tc



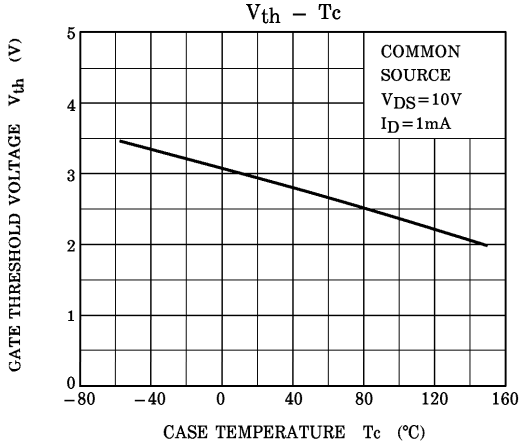
I_{DR} – V_{DS}



CAPACITANCE – V_{DS}



V_{th} – Tc



P_D – Tc