

**TPCF8104**

**Tentative**

NOTE BOOK PC APPLICATIONS  
PORTABLE EQUIPMENTS APPLICATIONS

UNIT:mm

- Low Drain - Source ON Resistance :  $R_{DS(ON)} = 26m$  (Typ.)
- High Forward Transfer Admittance :  $|Y_{fs}| = S$  (Typ.)
- Low Leakage Current :  $I_{DSS} = -10\mu A$  (Max.) ( $V_{DS} = -30V$ )
- Enhancement - Mode :  $V_{th} = -0.8 \sim -2.0V$  ( $V_{DS} = -10V, I_D = -1mA$ )

MAXIMUM RATINGS (Ta=25 )

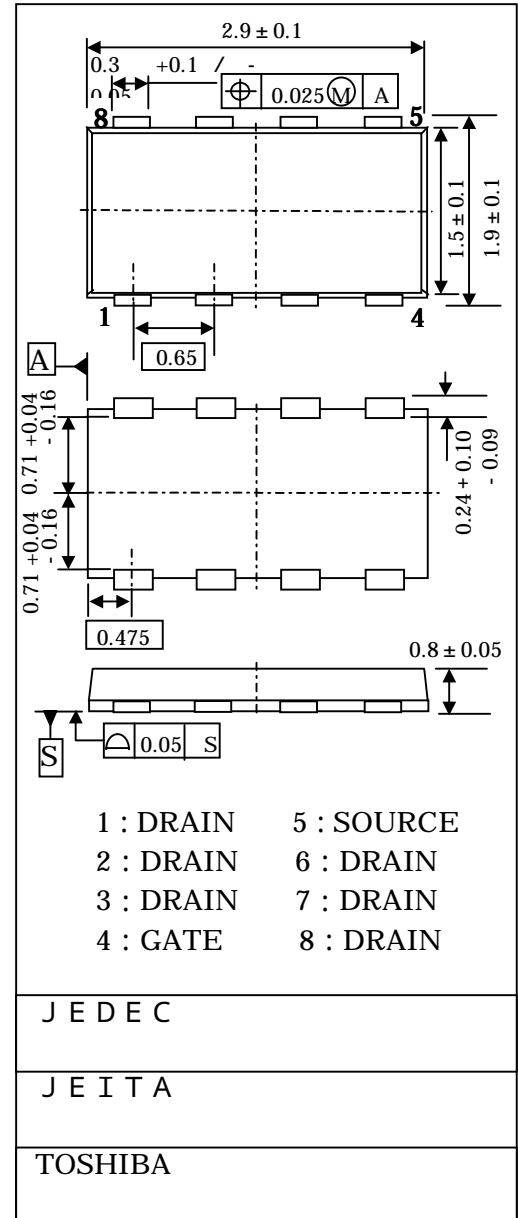
CHARACTERISTIC	SYMBOL	RATING	UNIT
Drain - Source Voltage	$V_{DSS}$	-30	V
Drain - Gate Voltage ( $R_{GS} = 20k$ )	$V_{DGR}$	-30	V
Gate - Source Voltage	$V_{GSS}$	$\pm 20$	V
Drain Current	DC (Note1)	$I_D$	-6 A
	Pulse (Note1)	$I_{DP}$	-24 A
Drain Power Dissipation (t=5s) (Note2a)	$P_D$	2.5	W
Drain Power Dissipation (t=5s) (Note2b)	$P_D$	0.7	W
Single Pulse Avalanche Energy(Note3)	$E_{AS}$	5.9	mJ
Avalanche Current	$I_{AR}$	3	A
Repetitive Avalanche Energy (Note4)	$E_{AR}$	0.25	mJ
Channel Temperature	$T_{ch}$	150	
Storage Temperature Range	$T_{stg}$	- 55 ~ 150	

THERMAL CHARACTERISTICS

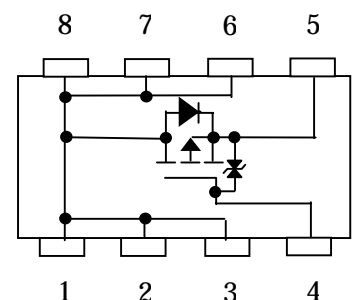
CHARACTERISTICS	SYMBOL	MAX.	UNIT
Thermal Resistance, Channel to Ambient (t=5s) (Note2a)	$R_{th(ch-a)}$	50.0	/ W
Thermal Resistance, Channel to Ambient (t=5s) (Note2b)	$R_{th(ch-a)}$	178.6	/ W

Note1, Note2, Note3, Note4, Note5 Please see next page.

THIS TRANSISTOR IS AN ELECTROSTATIC SENSITIVE DEVICE.  
PLEASE HANDLE WITH CAUTION.



Circuit Configuration



Tentative

## ELECTRICAL CHARACTERISTICS (Ta = 25 °C)

CHARACTERISTICS		SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Gate Leakage Current		$I_{GSS}$	$V_{GS} = \pm 16V, V_{DS} = 0V$	-	-	$\pm 10$	$\mu A$
Drain Cut-off Current		$I_{DSS}$	$V_{DS} = -30V, V_{GS} = 0V$	-	-	-10	$\mu A$
Drain-Source Breakdown Voltage		$V_{(BR)DSS}$	$I_D = -10mA, V_{GS} = 0V$	-30	-	-	V
		$V_{(BR)DSX}$	$I_D = -10mA, V_{GS} = 20V$	-15	-	-	V
Gate Threshold Voltage		$V_{th}$	$V_{DS} = -10V, I_D = -1mA$	-0.8	-	-2.0	V
Drain-Source ON Resistance		$R_{DS(ON)}$	$V_{GS} = -4.5V, I_D = 3A$	-	37	46	m
			$V_{GS} = -10V, I_D = -3A$	-	26	33	
Forward Transfer Admittance		$ Y_{fs} $	$V_{DS} = -10V, I_D = -3A$	TBD	TBD	-	S
Input Capacitance		$C_{iss}$	$V_{DS} = -10V, V_{GS} = 0V$ $f = 1MHz$	-	TBD	-	pF
Reverse Transfer Capacitance		$C_{riss}$		-	TBD	-	
Output Capacitance		$C_{oss}$		-	TBD	-	
Switching Time	Rise Time	$t_r$		-	TBD	-	ns
	Turn-on Time	$t_{on}$		-	TBD	-	
	Fall Time	$t_f$		-	TBD	-	
	Turn-off Time	$t_{off}$		-	TBD	-	
Total Gate Charge (Gate-Source Plus Gate-Drain)		$Q_g$	$V_{DD} = -24V, V_{GS} = -10V$ $I_D = -6A$	-	TBD	-	nC
Gate-Source Charge		$Q_{gs}$		-	TBD	-	
Gate-Drain("Miller")Charge		$Q_{gd}$		-	TBD	-	

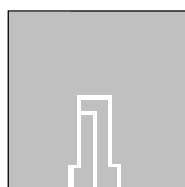
## SOURCE - DRAIN DIODE RATINGS AND CHARACTERISTICS (Ta = 25 °C)

CHARACTERISTICS	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Pulse Drain Reverse Current (Note1)	$I_{DRP}$	-	-	-	-24	A
Diode Forward Voltage	$V_{DSF}$	$I_{DR} = -6A, V_{GS} = 0V$	-	-	1.2	V

Note1 Please use devices on condition that the channel temperature is below 150 °C.

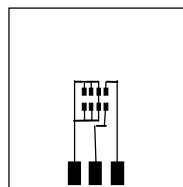
Note2:

(a) Device mounted on glass-epoxy board (a) (b) Device mounted on glass-epoxy board (b)



(a)

FR-4  
25.4 × 25.4 × 0.8  
(Unit in mm)



(b)

FR-4  
25.4 × 25.4 × 0.8  
(Unit in mm)

Note3:  $V_{DD} = -24V, T_{ch} = 25$  (initial),  $L = 0.5mH, R_G = 25$  Ω,  $I_{AR} = -3.0A$

Note4: Repetitive rating; Pulse Width Limited by Max. Channel Temperature.

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