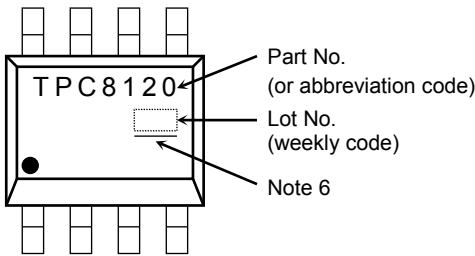


## Thermal Characteristics

Characteristics	Symbol	Max	Unit
Thermal resistance, channel to ambient (t = 10 s) (Note 2a)	$R_{th(ch-a)}$	65.8	°C/W
Thermal resistance, channel to ambient (t = 10 s) (Note 2b)	$R_{th(ch-a)}$	125	°C/W

## Marking (Note 5)

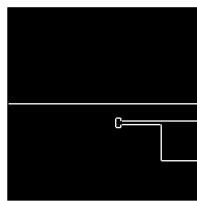


Note 6: A line under a Lot No. identifies the indication of product Labels [[G]]/RoHS COMPATIBLE or [[G]]/RoHS [[Pb]]

Please contact your TOSHIBA sales representative for details as to environmental matters such as the RoHS compatibility of Product. The RoHS is Directive 2011/65/EU of the European Parliament and of the Council of 8 June 2011 on the restriction of the use of certain hazardous substances in electrical and electronic equipment

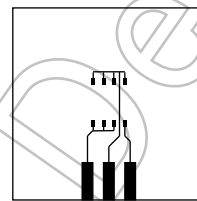
Note 1: Ensure that the channel temperature does not exceed 150°C.

Note 2: (a) Device mounted on a glass-epoxy board (a) (b) Device mounted on a glass-epoxy board (b)



(a)

FR-4  
25.4 × 25.4 × 0.8  
(Unit: mm)



(b)

FR-4  
25.4 × 25.4 × 0.8  
(Unit: mm)

Note 3:  $V_{DD} = -24\text{ V}$ ,  $T_{ch} = 25^\circ\text{C}$  (initial),  $L = 500\ \mu\text{H}$ ,  $R_G = 25\ \Omega$ ,  $I_{AR} = -18\ \text{A}$

Note 4: Repetitive rating: pulse width limited by maximum channel temperature

Note 5: • on lower left of the marking indicates Pin 1.

※ Weekly code: (Three digits)



Week of manufacture

(01 for the first week of a year: sequential number up to 52 or 53)

Year of manufacture

(The last digit of a year)

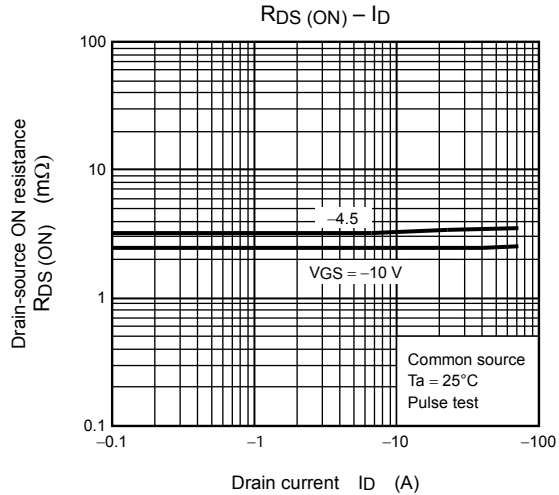
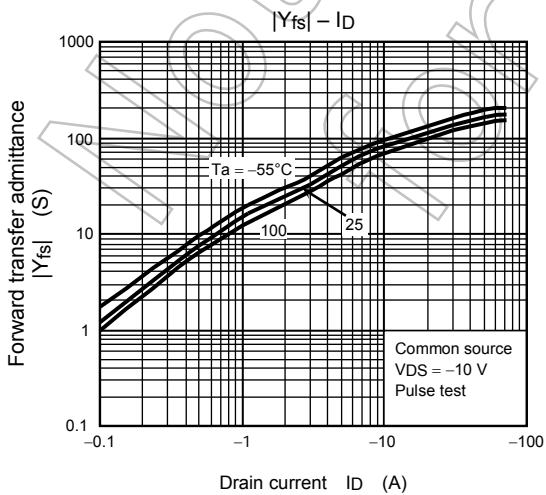
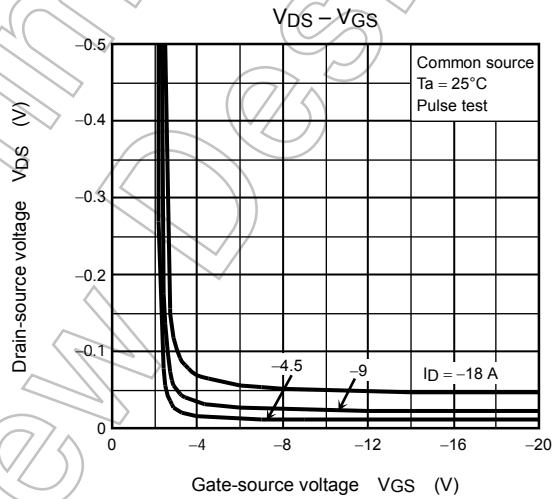
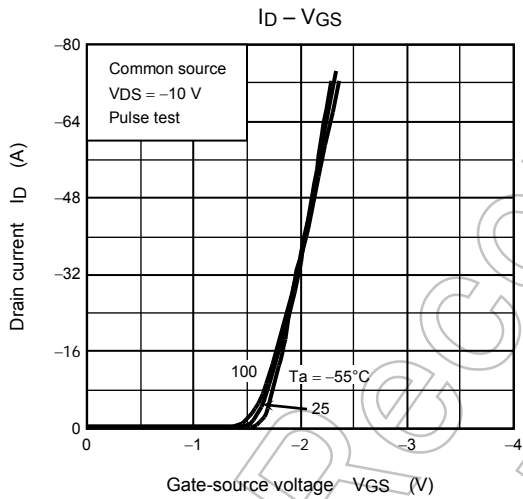
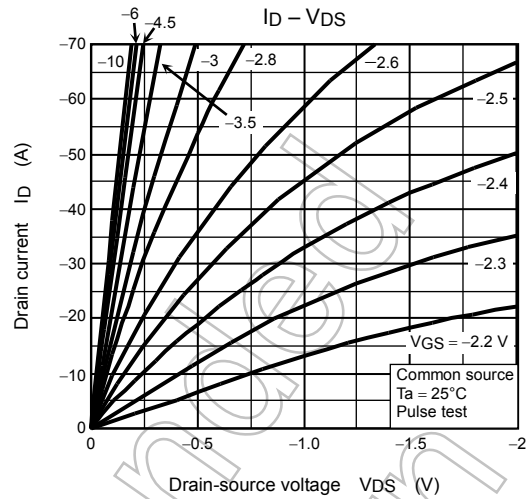
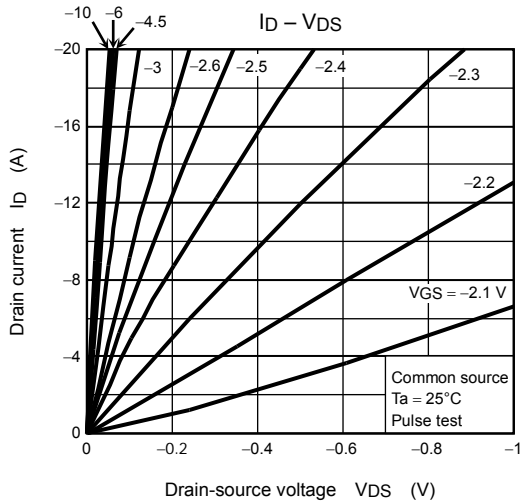
## Electrical Characteristics (Ta = 25°C)

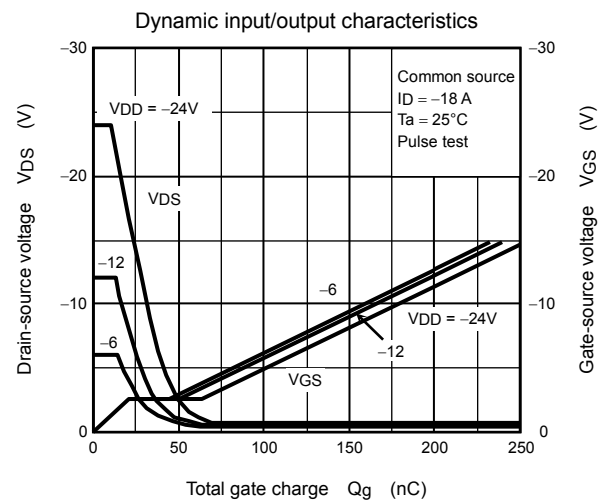
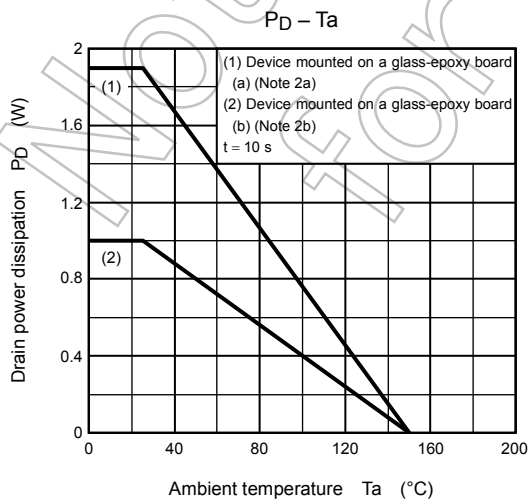
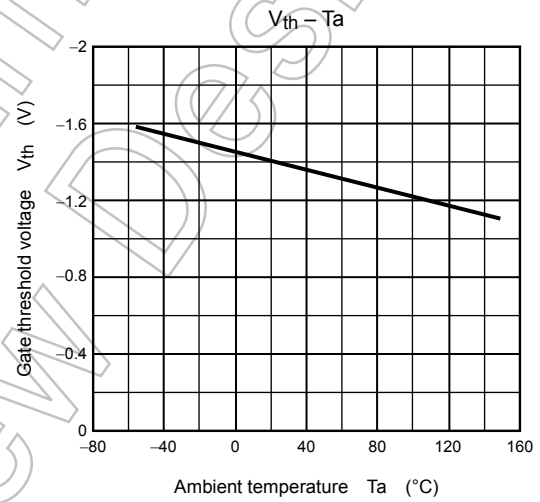
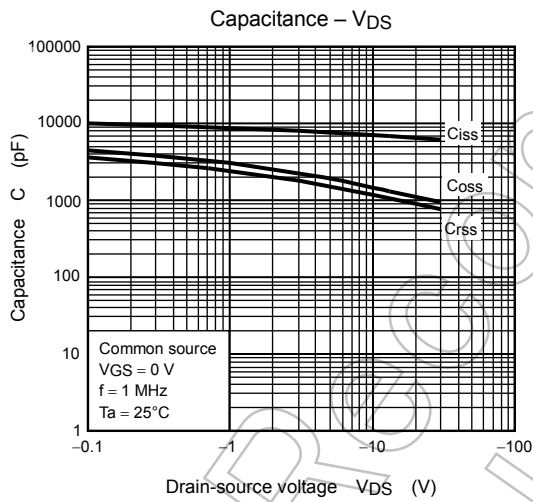
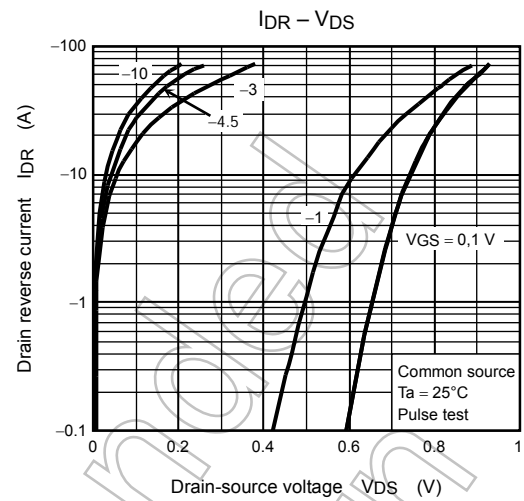
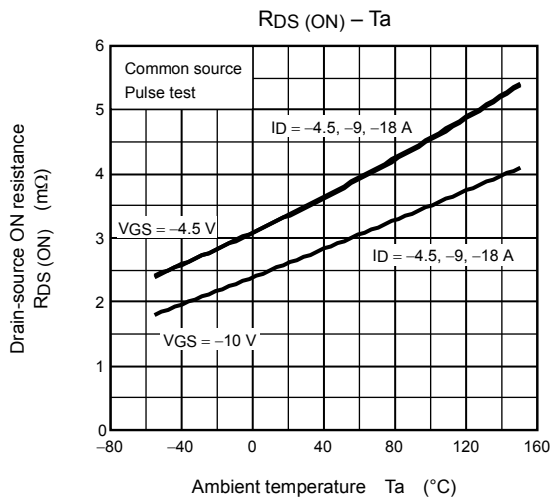
Characteristics		Symbol	Test Condition	Min	Typ.	Max	Unit
Gate leakage current		IGSS	VGS = ±20 V, VDS = 0 V	—	—	±100	nA
Drain cut-OFF current		IDSS	VDS = -30 V, VGS = 0 V	—	—	-10	μA
Drain-source breakdown voltage		V(BR)DSS	ID = -10 mA, VGS = 0 V	-30	—	—	V
		V(BR)DSX	ID = -10 mA, VGS = 10V (Note 7)	-21	—	—	
Gate threshold voltage		Vth	VDS = -10 V, ID = -1 mA	-0.8	—	-2.0	V
Drain-source ON-resistance		RDS(ON)	VGS = -4.5 V, ID = -9 A	—	3.3	4.2	mΩ
			VGS = -10 V, ID = -9 A	—	2.6	3.2	
Forward transfer admittance		Yfs	VDS = -10 V, ID = -9 A	40	80	—	S
Input capacitance		Ciss	VDS = -10 V, VGS = 0 V, f = 1 MHz	—	7420	—	pF
Reverse transfer capacitance		Crss		—	1180	—	
Output capacitance		Coss		—	1440	—	
Switching time	Rise time	tr		—	10	—	ns
	Turn-ON time	ton		—	18	—	
	Fall time	tf		—	275	—	
	Turn-OFF time	toff		Duty ≤ 1%, tw = 10 μs	—	790	
Total gate charge (gate-source plus gate-drain)		Qg	VDD ≈ -24 V, VGS = -10 V, ID = -18 A	—	180	—	nC
Gate-source charge 1		Qgs1		—	20	—	
Gate-drain ("miller") charge		Qgd		—	40	—	

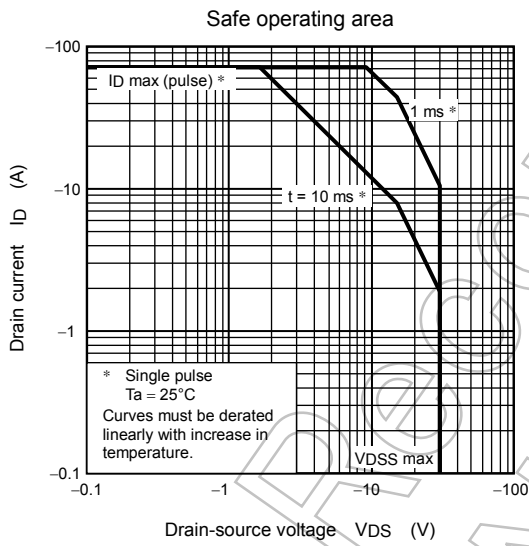
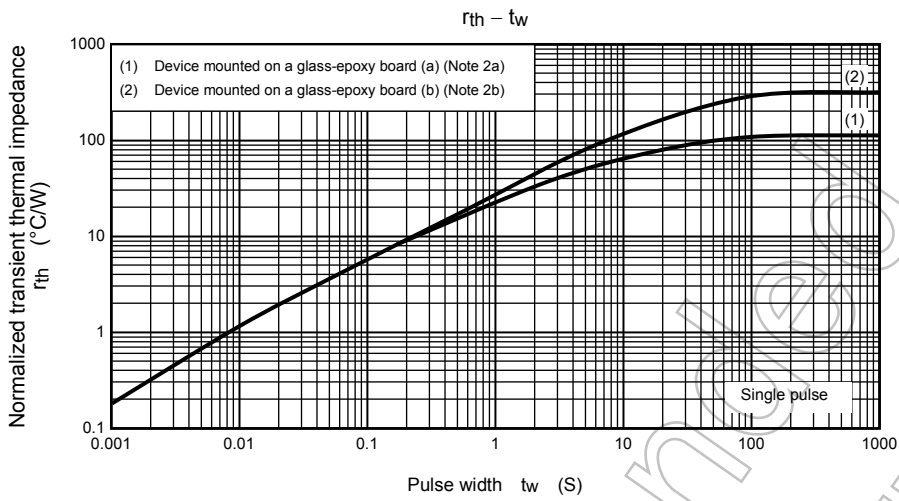
## Source-Drain Ratings and Characteristics (Ta = 25°C)

Characteristics		Symbol	Test Condition	Min	Typ.	Max	Unit
Drain reverse current	Pulse (Note 1)	IDRP	—	—	—	-72	A
Forward voltage (diode)		VDSF	IDR = -18 A, VGS = 0 V	—	—	1.2	V

Note 7: VDSX mode (the application of a plus voltage between gate and source) may cause decrease in maximum rating of drain-source voltage.







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