

# 2PG002

## N-channel enhancement mode IGBT

For plasma display panel drive

For high speed switching circuits

### ■ Features

- Low collector-emitter saturation voltage:  $V_{CE(sat)} < 2.4 \text{ V}$
- High speed hall time:  $t_f = 190 \text{ nsec (typ.)}$

### ■ Absolute Maximum Ratings $T_C = 25^\circ\text{C}$

Parameter	Symbol	Rating	Unit
Collector-emitter voltage (E-B short)	$V_{CES}$	410	V
Gate-emitter voltage (E-B short)	$V_{GES}$	$\pm 30$	V
Collector current	$I_C$	40	A
Peak collector current *	$I_{CP}$	160	A
Power dissipation	$P_C$	40	W
		$T_a = 25^\circ\text{C}$	2.0
Junction temperature	$T_j$	150	$^\circ\text{C}$
Storage temperature	$T_{stg}$	-55 to +150	$^\circ\text{C}$

Note) \*:  $PW \leq 10 \text{ us}$ ,  $Duty \leq 1.0\%$ 

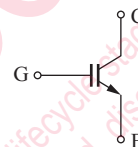
### ■ Package

- Code  
TO-220F-A1
- Marking Symbol: 2PG002

### ■ Pin Name

1. Gate
2. Collector
3. Emitter

### ■ Internal Connection



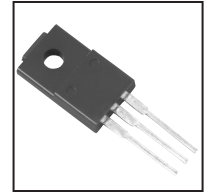
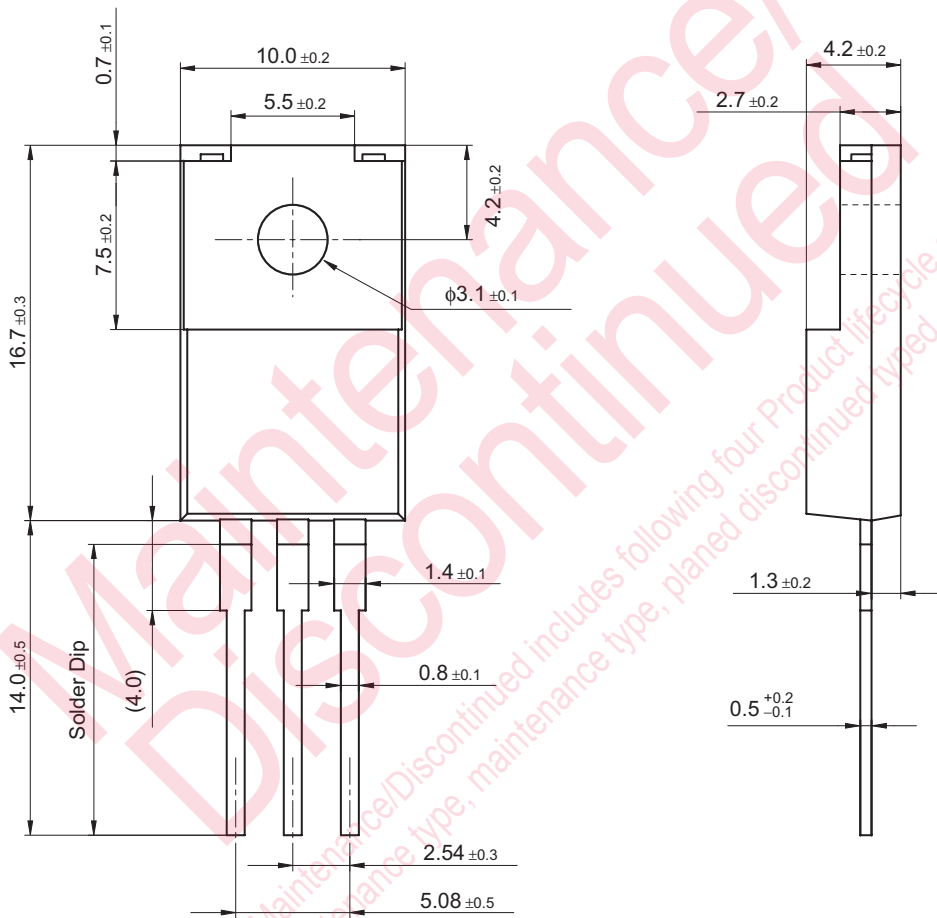
### ■ Electrical Characteristics $T_C = 25^\circ\text{C} \pm 3^\circ\text{C}$

Parameter	Symbol	Conditions	Min	Typ	Max	Unit	
Collector-emitter voltage (E-B short)	$V_{CES}$	$I_C = 1 \text{ mA}$ , $V_{GE} = 0$	410			V	
Collector-emitter cutoff current (E-B short)	$I_{CES}$	$V_{CE} = 328 \text{ V}$ , $V_{GE} = 0$			50	$\mu\text{A}$	
Gate-emitter cutoff current (E-B short)	$I_{GES}$	$V_{GE} = \pm 30 \text{ V}$ , $V_{CE} = 0$			$\pm 1.0$	$\mu\text{A}$	
Gate-emitter threshold voltage	$V_{GE(th)}$	$V_{CE} = 10 \text{ V}$ , $I_C = 1.0 \text{ mA}$	3.0		5.5	V	
Collector-emitter saturation voltage	$V_{CE(sat)}$	$V_{GE} = 15 \text{ V}$ , $I_C = 40 \text{ A}$		1.9	2.4	V	
Short-circuit input capacitance (Common emitter)	$C_{ies}$	$V_{CE} = 25 \text{ V}$ , $V_{GE} = 0$ , $f = 1 \text{ MHz}$		1200		pF	
Short-circuit output capacitance (Common emitter)	$C_{oes}$				150		pF
Reverse transfer capacitance (Common emitter)	$C_{res}$				25		pF
Gate charge load	$Q_g$				51		nC
Gate-emitter charge	$Q_{ge}$	$V_{CC} = 200 \text{ V}$ , $I_C = 40 \text{ A}$ , $V_{GE} = 15 \text{ V}$		7		nC	
Gate-collector charge	$Q_{gc}$				22		nC
Turn-on delay time	$t_{d(on)}$				96		ns
Rise time	$t_r$	$V_{CC} = 200 \text{ V}$ , $I_C = 40 \text{ A}$ , $RL \approx 5 \Omega$ , $V_{GE} = 15 \text{ V}$		390		ns	
Turn-off delay time	$t_{d(off)}$				200		ns
Fall time	$t_f$				190		ns

Note) Measuring methods are based on JAPANESE INDUSTRIAL STANDARD JIS C 7030 measuring methods for transistors.

TO-220F-A1

Unit: mm



Maintenancel  
Discontinued  
Maintenance/Discontinued includes following four Product lifecycle stage.  
(planned maintenance type, maintenance type, planned discontinued type, discontinued type)

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