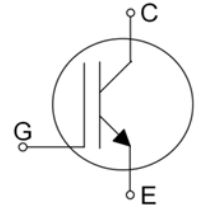
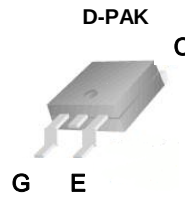


Features:

- 400V Trench Technology
- High Speed Switching
- Low Conduction Loss
- Positive Temperature Coefficient
- Easy parallel Operation
- RoHS compliant
- JEDEC Qualification


Applications :

Plasma Display Panel, Soft switching application,

Device	Package	Packaging type	Marking	Remark
TGD30N40P	D-PAK	Reel	TGD30N40P	RoHS

Absolute Maximum Ratings

Parameter		Symbol	Value	Unit
Collector-Emitter Voltage		V_{CES}	400	V
Gate-Emitter Voltage		V_{GES}	± 30	V
Continuous Current	$T_C = 25\text{ }^{\circ}\text{C}$	I_C	60	A
	$T_C = 100\text{ }^{\circ}\text{C}$		30	A
Pulsed Collector Current (Note 1)		I_{CM}	300	A
Power Dissipation	$T_C = 25\text{ }^{\circ}\text{C}$	P_D	56.8	W
	$T_C = 100\text{ }^{\circ}\text{C}$		22.7	W
Operating Junction Temperature		T_J	-55 ~ 150	$^{\circ}\text{C}$
Storage Temperature Range		T_{STG}	-55 ~ 150	$^{\circ}\text{C}$
Maximum lead temperature for soldering purposes, 1/8" from case for 5 seconds		T_L	300	$^{\circ}\text{C}$

Notes :

(1) Repetitive rating : Pulse width limited by max junction temperature, $PW \leq 10\mu\text{s}$, duty cycle $\leq 1\%$.

Thermal Characteristics

Parameter	Symbol	Value	Unit
Maximum Thermal resistance, Junction-to-Case	$R_{\theta JC}$	2.2	$^{\circ}\text{C/W}$
Maximum Thermal resistance, Junction-to-Ambient	$R_{\theta JA}$	110	$^{\circ}\text{C/W}$

Electrical Characteristics of the IGBT $T_C=25^{\circ}\text{C}$, unless otherwise noted

Parameter	Symbol	Test condition	Min	Typ	Max	Units
OFF						
Collector – Emitter Breakdown Voltage	BV_{CES}	$V_{GE} = 0V, I_C = 1mA$	400	--	--	V
Zero Gate Voltage Collector Current	I_{CES}	$V_{CE} = 400V, V_{GE} = 0V$	--	--	100	μA
Gate – Emitter Leakage Current	I_{GES}	$V_{CE} = 0V, V_{GE} = \pm 30V$	--	--	± 250	nA

ON						
Gate – Emitter Threshold Voltage	$V_{GE(TH)}$	$V_{GE} = V_{CE}, I_C = 1mA$	2	3.1	4.5	V
Collector – Emitter Saturation Voltage	$V_{CE(SAT)}$	$V_{GE} = 15V, I_C = 30A, T_J = 25^{\circ}\text{C}$	--	1.4	2.0	V
		$V_{GE} = 15V, I_C = 30A, T_J = 125^{\circ}\text{C}$	--	1.52	--	V

DYNAMIC						
Input Capacitance	C_{IES}	$V_{CE} = 25V,$ $V_{GE} = 0V,$ $f = 1MHz$	--	845	--	pF
Output Capacitance	C_{OES}		--	50	--	pF
Reverse Transfer Capacitance	C_{RES}		--	23	--	pF

SWITCHING						
Turn-On Delay Time	$t_{d(on)}$	$V_{CC} = 150V, I_C = 30A,$ $R_G = 5\Omega, V_{GE} = 15V,$ Resistive Load, $T_J = 25^{\circ}\text{C}$	--	13	--	ns
Rise Time	t_r		--	105	--	ns
Turn-Off Delay Time	$t_{d(off)}$		--	35	--	ns
Fall Time	t_f		--	160	--	ns
Turn-On Delay Time	$t_{d(on)}$	$V_{CC} = 150V, I_C = 30A,$ $R_G = 5\Omega, V_{GE} = 15V,$ Resistive Load, $T_J = 125^{\circ}\text{C}$	--	14	--	ns
Rise Time	t_r		--	145	--	ns
Turn-Off Delay Time	$t_{d(off)}$		--	40	--	ns
Fall Time	t_f		--	240	--	ns
Total Gate Charge	Q_g	$V_{CC} = 150V, I_C = 30A,$ $V_{GE} = 15V$	--	26	--	nC
Gate-Emitter Charge	Q_{ge}		--	3.1	--	nC
Gate-Collector Charge	Q_{gc}		--	9	--	nC