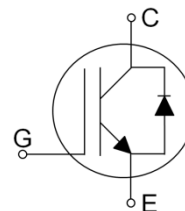


Features:

- 1000V NPT Trench Technology
- High Speed Switching
- Low Conduction Loss
- Positive Temperature Coefficient
- Easy parallel Operation
- RoHS compliant
- JEDEC Qualification



Applications :

Induction Heating, Soft switching application

Device	Package	Marking	Remark
TGL60N100ND1	TO-264	TGL60N100ND1	RoHS

Absolute Maximum Ratings

Parameter	Symbol	Value	Unit	
Collector-Emitter Voltage	V_{CES}	1000	V	
Gate-Emitter Voltage	V_{GES}	20	V	
Continuous Current	I_c	$T_C = 25$	60	A
		$T_C = 100$	42	A
Pulsed Collector Current ^(Note 1)	I_{CM}	120	A	
Diode Continuous Forward Current	I_F	15	A	
Power Dissipation	P_D	$T_C = 25$	463	W
		$T_C = 100$	185	W
Operating Junction Temperature	T_J	-55 ~ 150		
Storage Temperature Range	T_{STG}	-55 ~ 150		
Maximum lead temperature for soldering purposes,	T_L	300		

Notes :

(1) Repetitive rating : Pulse width limited by max junction temperature

Thermal Characteristics

Parameter	Symbol	Value	Unit
Maximum Thermal resistance, Junction-to-Case	$R_{\theta JC}$ (IGBT)	0.27	/W
Maximum Thermal resistance, Junction-to-Case	$R_{\theta JC}$ (DIODE)	1.59	/W
Maximum Thermal resistance, Junction-to-Ambient	$R_{\theta JA}$	25	/W

Electrical Characteristics of the DIODE $T_C=25$, unless otherwise noted

Parameter	Symbol	Test condition	Min	Typ	Max	Units	
Diode Forward Voltage	V_{FM}	$I_F = 15\text{ A}$	$T_J=25\text{ }^\circ\text{C}$	--	1.7	2.2	V
			$T_J=125\text{ }^\circ\text{C}$	--	1.8	--	
Diode Forward Voltage	V_{FM}	$I_F = 60\text{ A}$	$T_J=25\text{ }^\circ\text{C}$	--	2.9	3.4	V
			$T_J=125\text{ }^\circ\text{C}$	--	3.3	--	
Reverse Recovery Time	t_{rr}	$I_F = 60\text{ A},$ $di/dt=200\text{A/us}$	$T_J=25\text{ }^\circ\text{C}$	--	310	465	ns
			$T_J=125\text{ }^\circ\text{C}$	--	320	--	
Reverse Recovery Current	I_{rr}	$I_F = 60\text{ A},$ $di/dt=200\text{A/us}$	$T_J=25\text{ }^\circ\text{C}$	--	34	51	A
			$T_J=125\text{ }^\circ\text{C}$	--	35	--	
Reverse Recovery Charge	Q_{rr}	$I_F = 60\text{ A},$ $di/dt=200\text{A/us}$	$T_J=25\text{ }^\circ\text{C}$	--	5270	7900	nC
			$T_J=125\text{ }^\circ\text{C}$	--	5600	--	

IGBT Characteristics

Fig. 1 Output characteristics

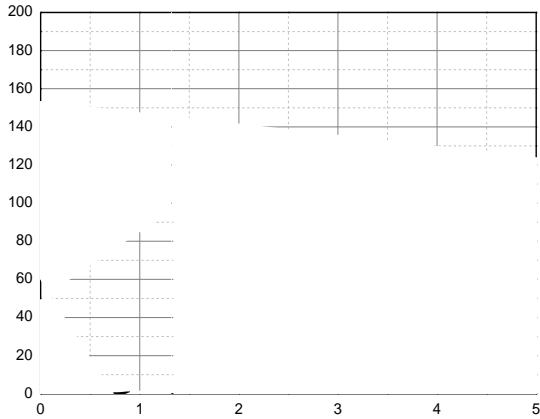


Fig. 2 Saturation voltage characteristics

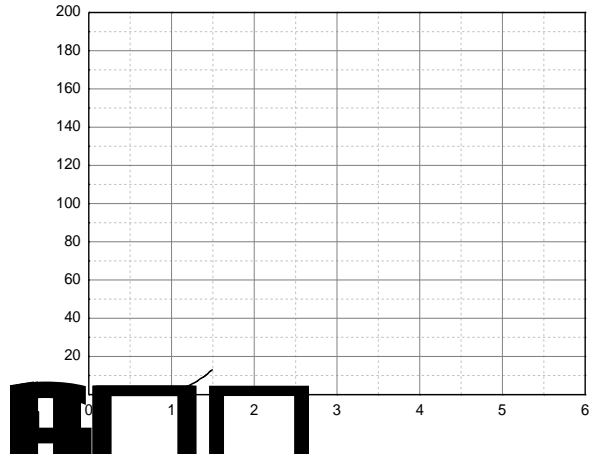


Fig. 3 Saturation voltage vs. collector current

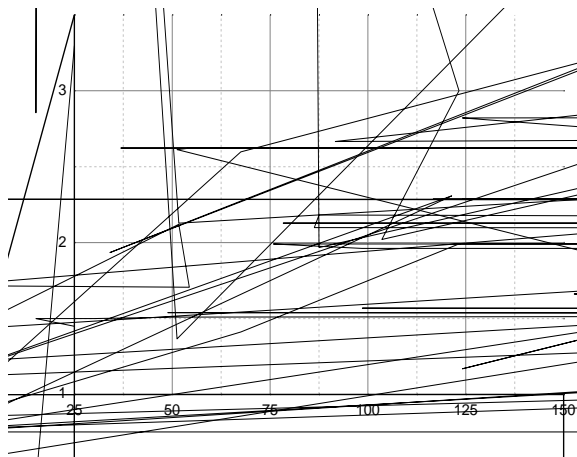


Fig. 4 Saturation voltage vs. gate bias

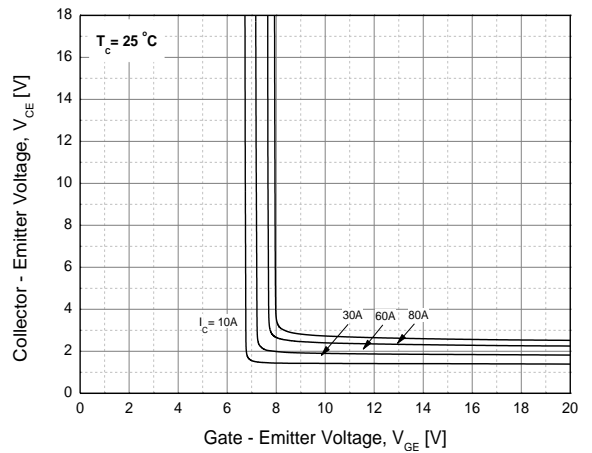
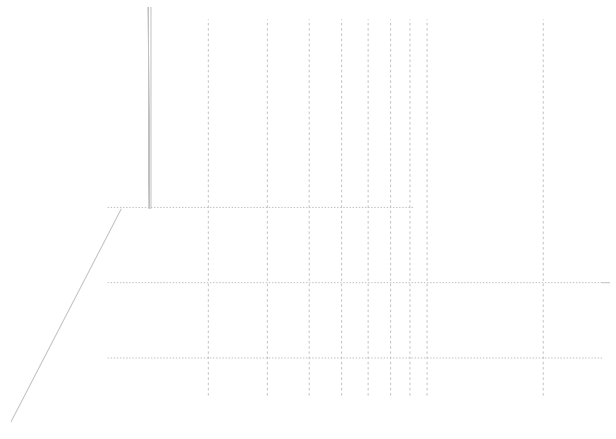


Fig. 5 Saturation voltage vs. gate bias



Fig. 6 Capacitance characteristics



IGBT Characteristics

Fig. 7 Turn on time vs. gate resistance

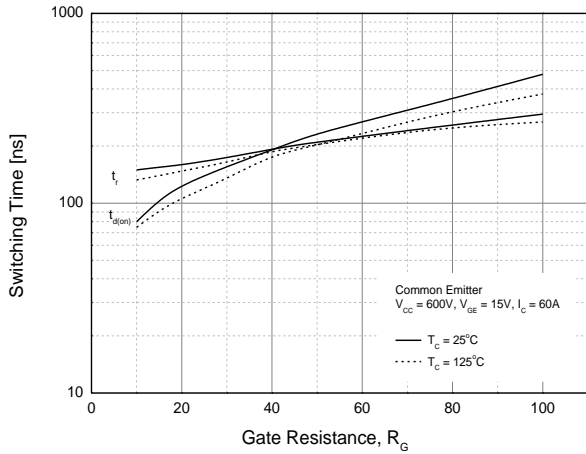


Fig. 8 Turn off time vs. gate resistance

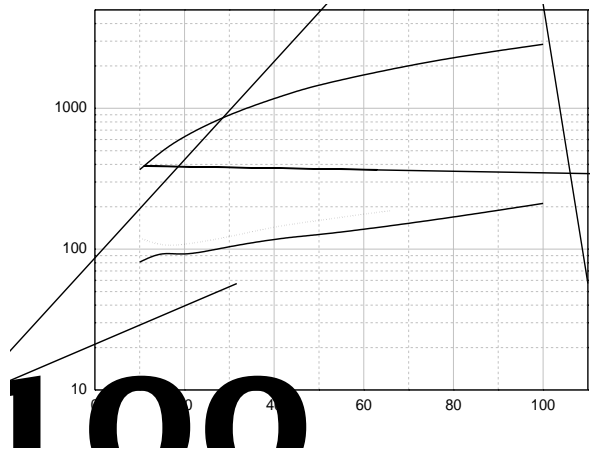


Fig. 9 Switching loss vs. gate resistance

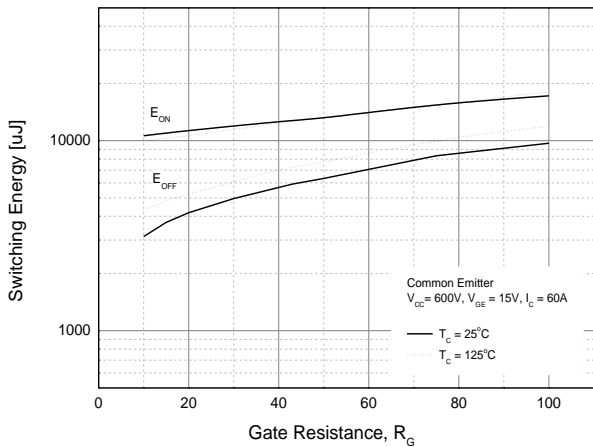


Fig. 10 Turn on time vs. collector current

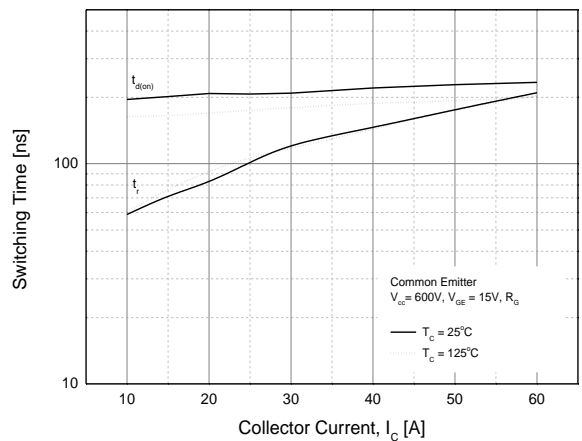


Fig. 11 Turn off time vs. collector current

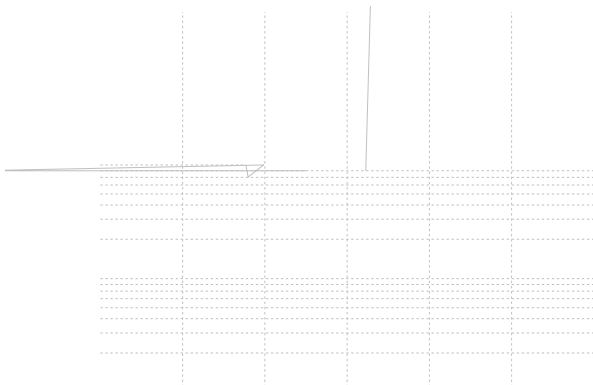
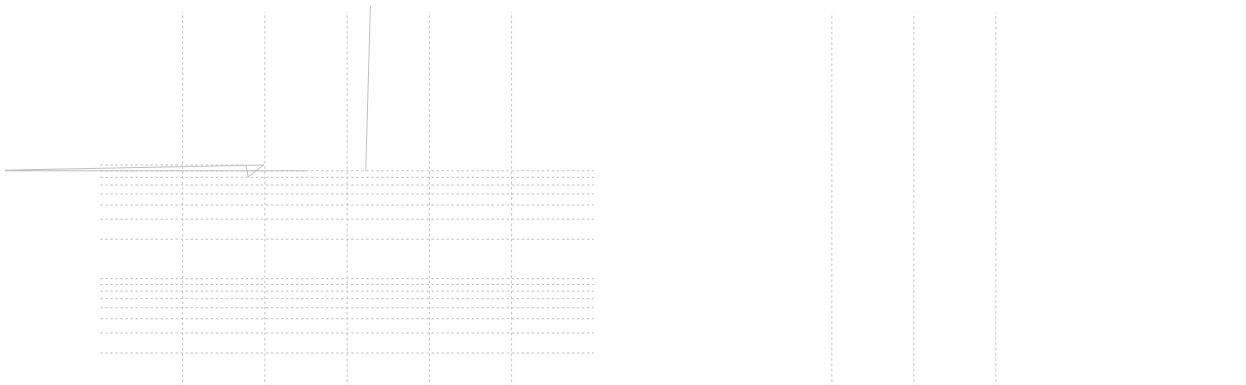


Fig. 12 Switching loss vs. collector current



IGBT Characteristics

Fig. 13 Gate charge characteristics

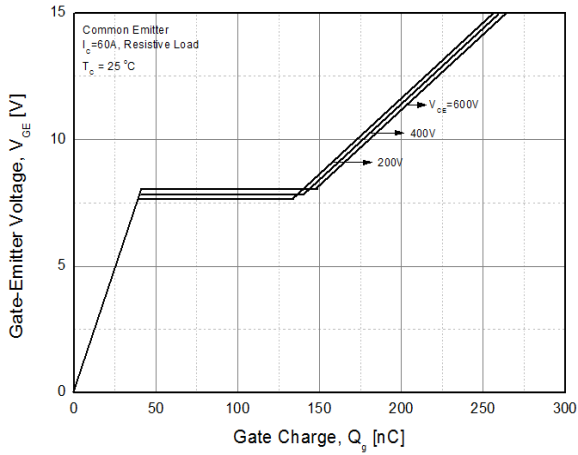


Fig. 14 SOA

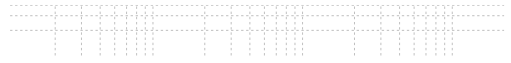


Fig. 15 RBSOA

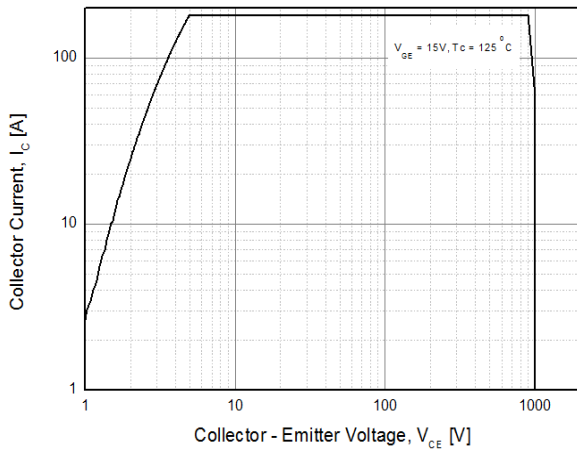


Fig. 16 Transient thermal impedance

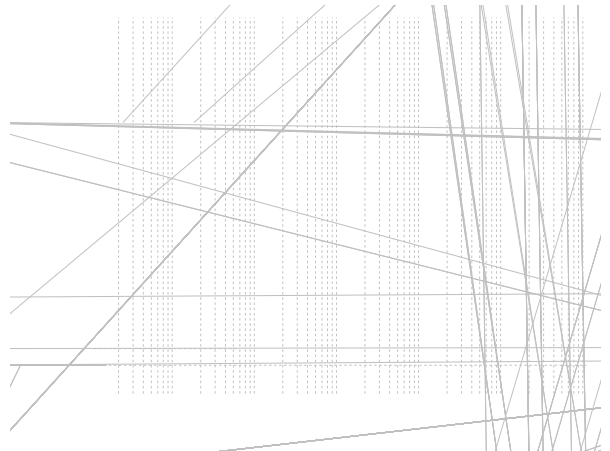
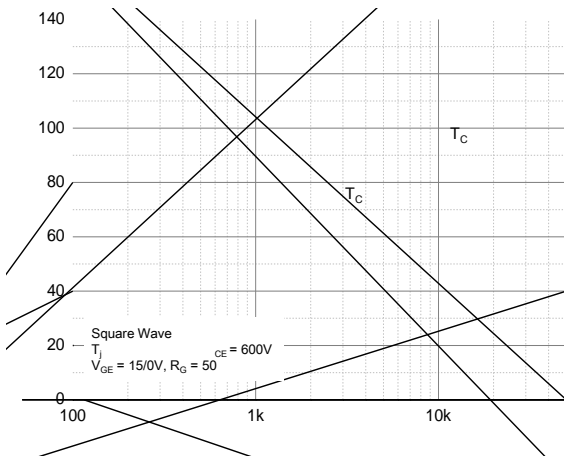


Fig. 17 Load Current vs. Frequency



Diode Characteristics

Fig. 18 Conduction characteristics

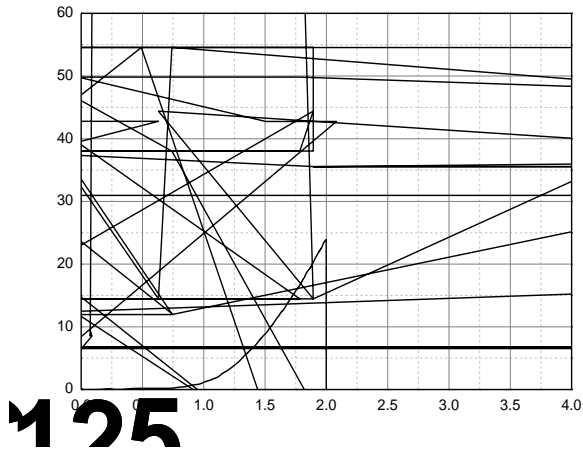


Fig. 19 Reverse recovery current vs. forward current

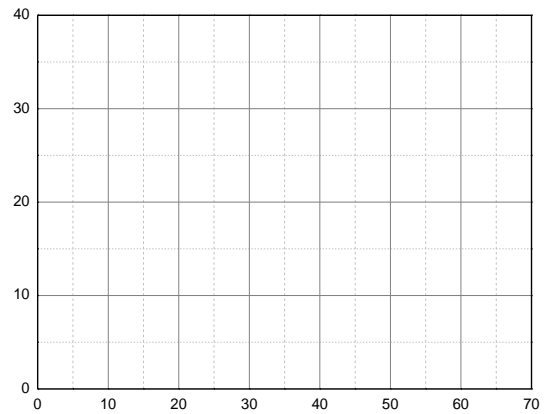


Fig. 20 Stored recovery charge vs. forward current

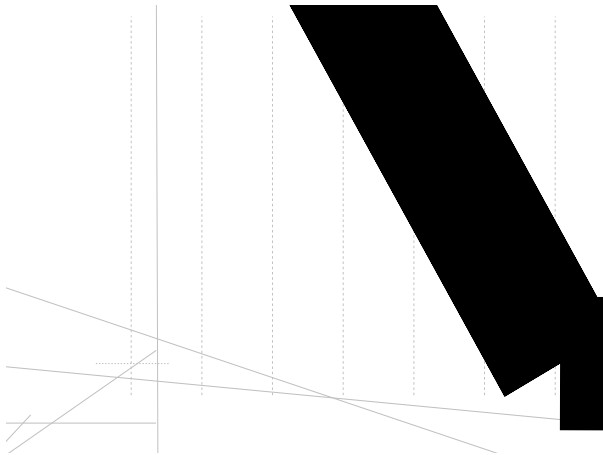
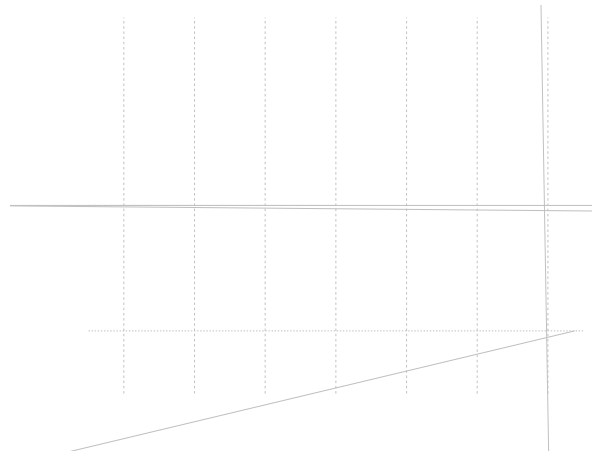
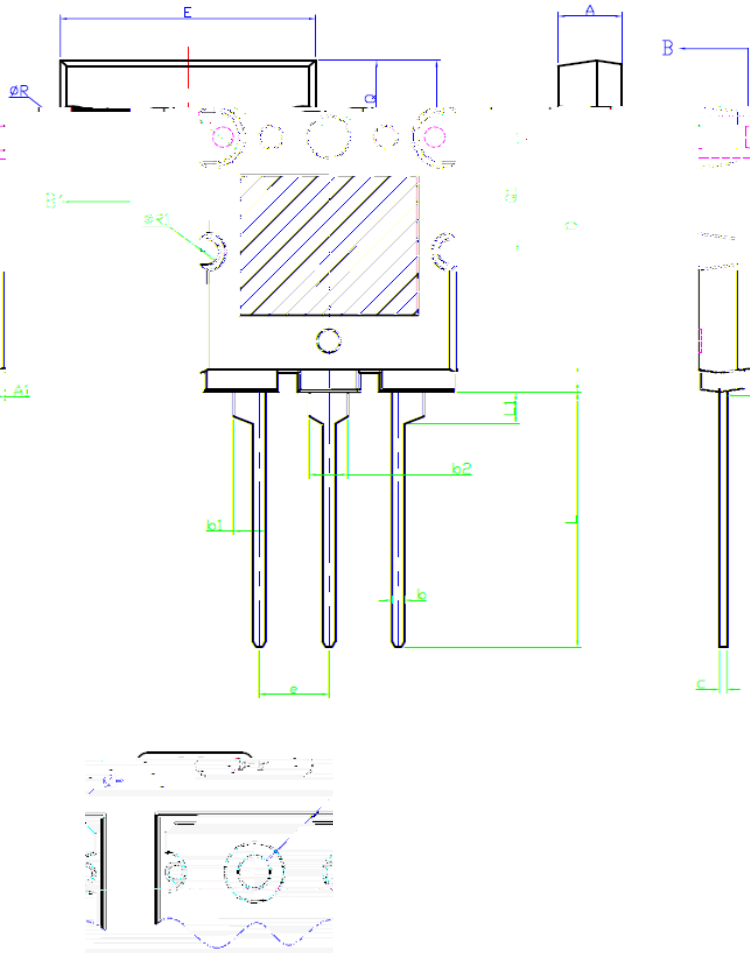


Fig. 21 Reverse recovery time vs. forward current



Package Dimension : TO-264



SYMBOL	MIN	NOM	MAX
A	4.80	5.00	5.20
A1	2.50	2.80	3.10
b	0.90	1.00	1.25
b1	2.30	2.50	2.70
b2	2.80	3.00	3.20