



SANYO Semiconductors

DATA SHEET

An ON Semiconductor Company

TIG056BF — N-Channel IGBT High Power High Speed Switching Applications

Features

- Low-saturation voltage
- Ultrahigh speed switching
- Enhancement type

Specifications

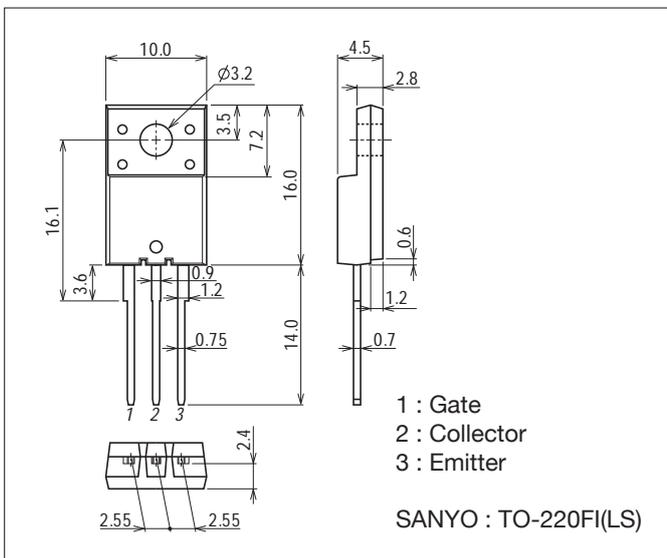
Absolute Maximum Ratings at Ta=25°C

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Emitter Voltage	V _{CES}		400	V
Gate-to-Emitter Voltage	V _{GES}		±33	V
Collector Current (Pulse)	I _{CP}	V _{GE} =15V, C _M =2000μF	240	A
Allowable Power Dissipation	P _C	T _c =25°C	30	W
Channel Temperature	T _{ch}		150	°C
Storage Temperature	T _{stg}		-55 to +150	°C

Package Dimensions

unit : mm (typ)

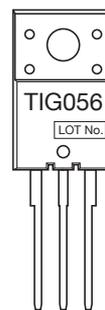
7509-005



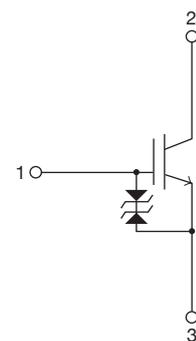
Product & Package Information

- Package : TO-220FI(LS)
- JEITA, JEDEC : SC-67, SOT-186A, TO-220F
- Minimum Packing Quantity : 100 pcs./bag, 50 pcs./magazine

Marking



Electrical Connection

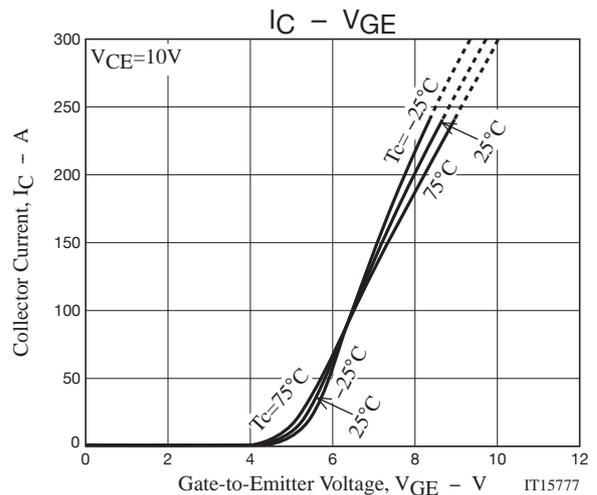
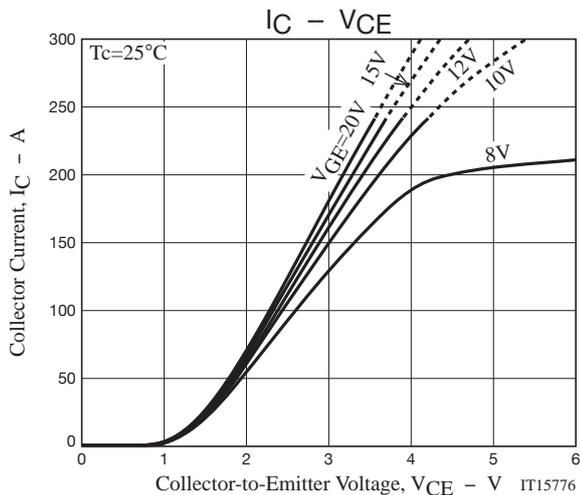
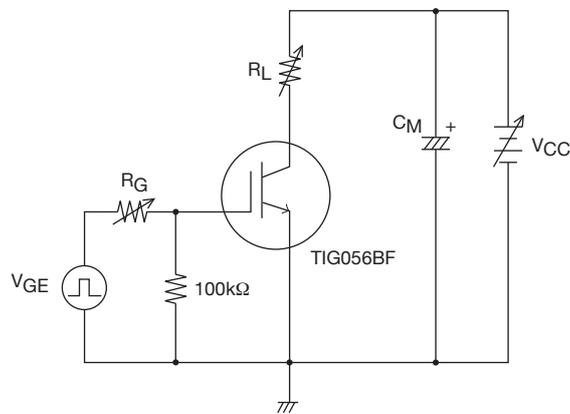


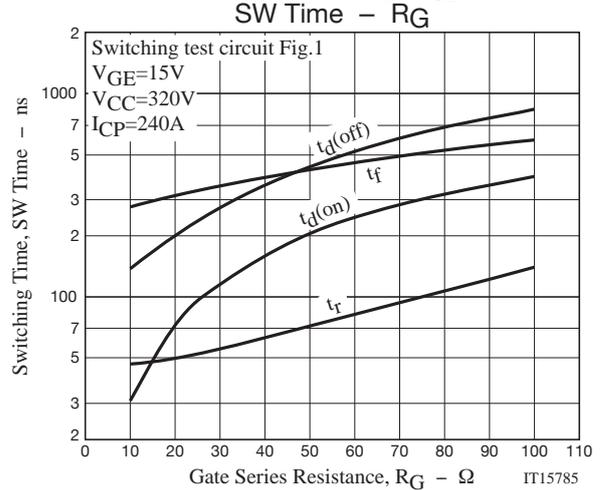
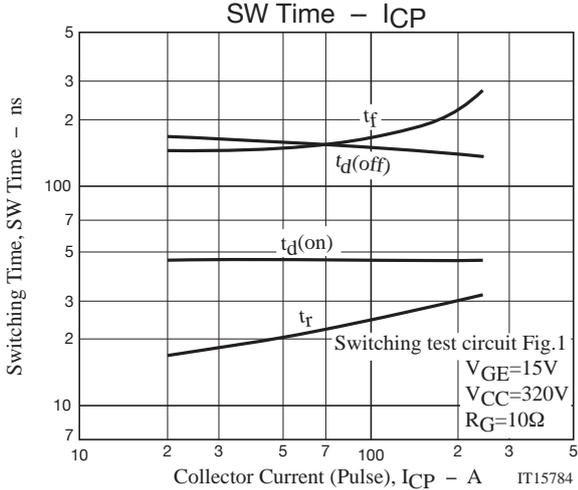
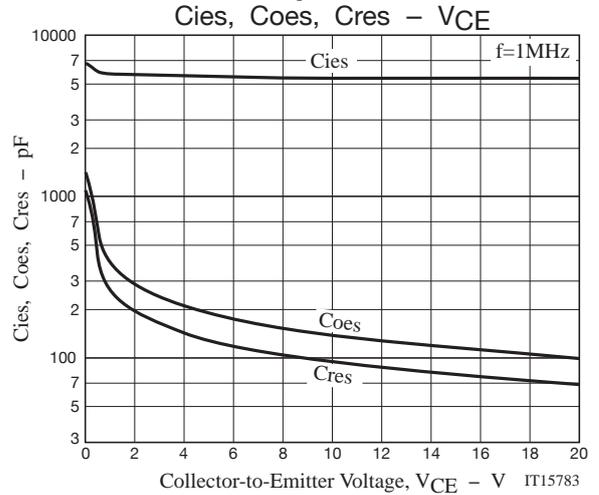
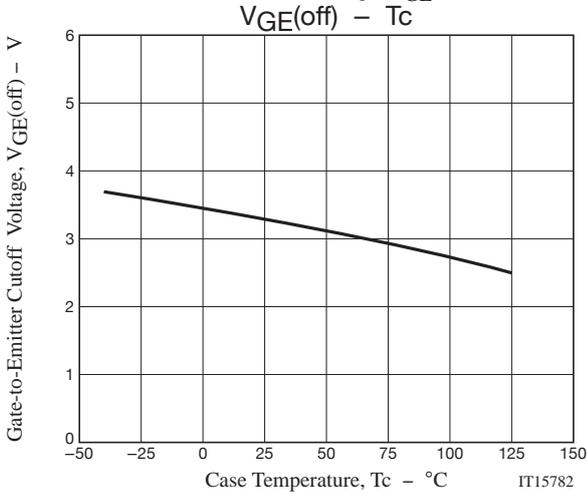
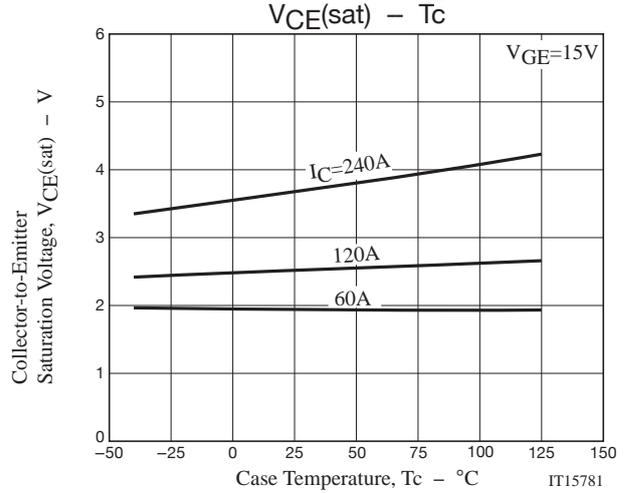
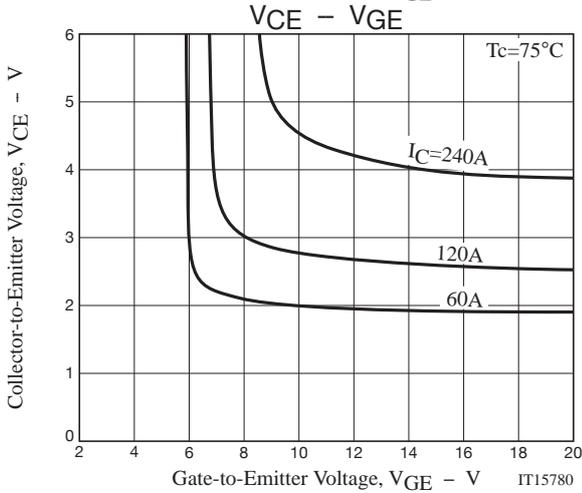
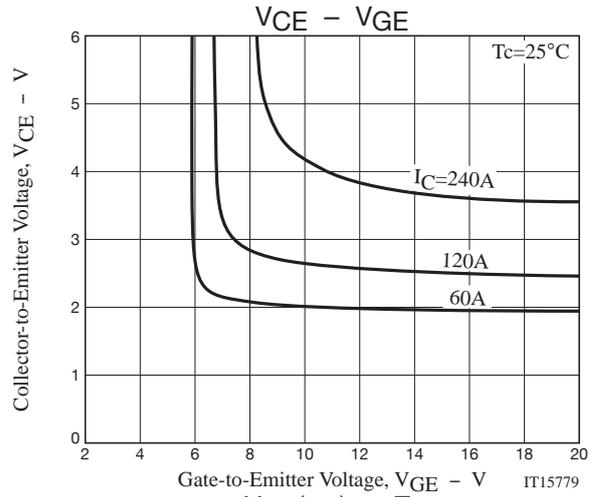
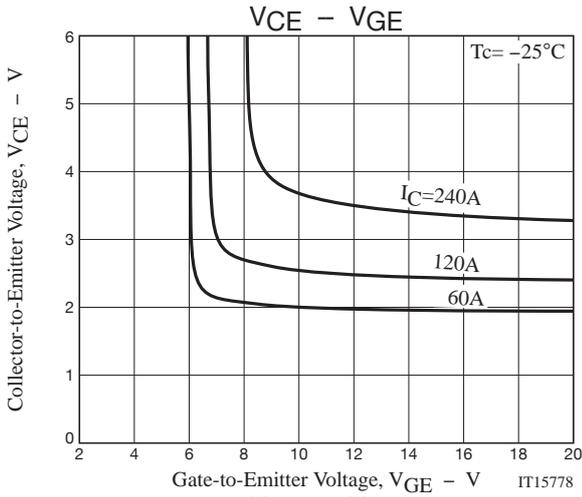
TIG056BF

Electrical Characteristics at $T_a=25^\circ\text{C}$

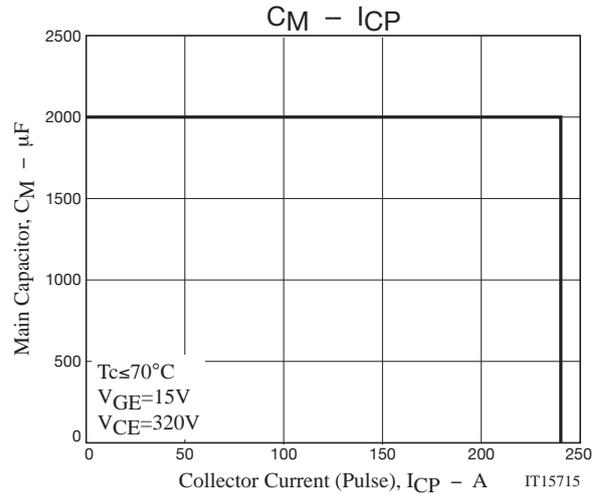
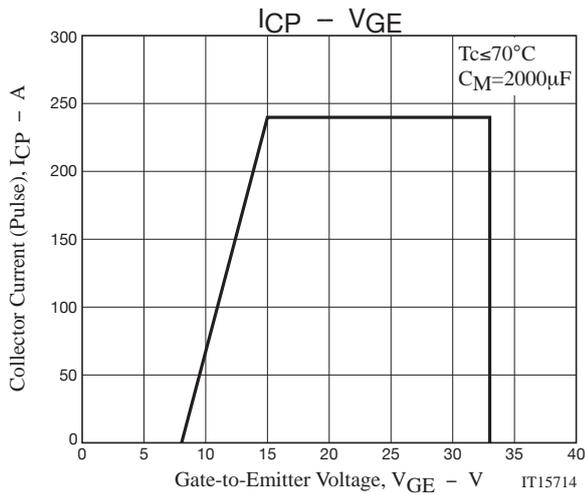
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CES}$	$I_C=2\text{mA}, V_{GE}=0\text{V}$	400			V
Collector-to-Emitter Cutoff Current	I_{CES}	$V_{CE}=320\text{V}, V_{GE}=0\text{V}$			100	μA
Gate-to-Emitter Leakage Current	I_{GES}	$V_{GE}=\pm 30\text{V}, V_{CE}=0\text{V}$			± 10	μA
Gate-to-Emitter Threshold Voltage	$V_{GE(off)}$	$V_{CE}=10\text{V}, I_C=1\text{mA}$	2.5		5.0	V
Collector-to-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=240\text{A}, V_{GE}=15\text{V}$		3.6	5.0	V
Input Capacitance	C_{ies}	$V_{CE}=20\text{V}, f=1\text{MHz}$		5500		pF
Output Capacitance	C_{oes}			100		pF
Reverse Transfer Capacitance	C_{res}			70		pF
Turn-ON Delay Time	$t_{d(on)}$			46		ns
Rise Time	t_r	$V_{CE}=320\text{V}, I_C=240\text{A}, V_{GE}=15\text{V}, R_G=10\Omega$		32		ns
Turn-OFF Delay Time	$t_{d(off)}$			140		ns
Fall Time	t_f			270		ns

Fig1 Large Current R Load Switching Circuit





TIG056BF



Note : TIG056BF has protection diode between gate and emitter but handling it requires sufficient care to be taken.

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