



TIG056BF

N-Channel IGBT

430V, 240A, VCE(sat); 3.6V TO-220F-3FS

ON Semiconductor®

<http://onsemi.com>

Features

- Low-saturation voltage
- Ultrahigh speed switching
- Enhancement type
- Protection diode in

Specifications

Absolute Maximum Ratings at Ta=25°C

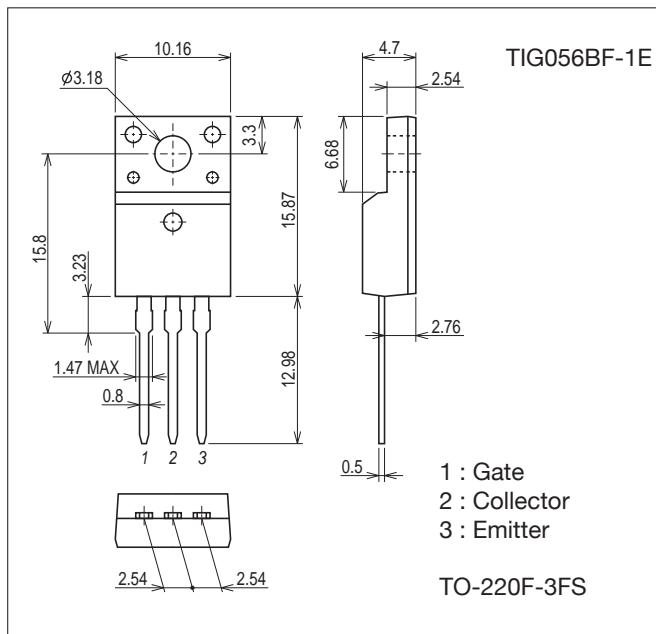
Parameter	Symbol	Conditions	Ratings	Unit
Collector to Emitter Voltage	V _{CES}		430	V
Gate to Emitter Voltage	V _{GES}		±33	V
Collector Current (Pulse)	I _{CP}	V _{GE} =15V, C _M =2000µF	240	A
Allowable Power Dissipation	P _D	T _c =25°C	30	W
Channel Temperature	T _{ch}		150	°C
Storage Temperature	T _{stg}		-55 to +150	°C

Stresses exceeding Maximum Ratings may damage the device. Maximum Ratings are stress ratings only. Functional operation above the Recommended Operating Conditions is not implied. Extended exposure to stresses above the Recommended Operating Conditions may affect device reliability.

Package Dimensions

unit : mm (typ)

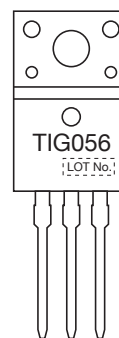
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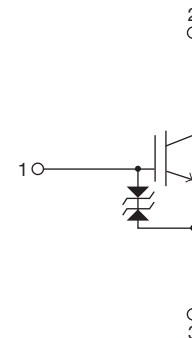
Ordering & Package Information

Device	Package	Shipping	memo
TIG056BF-1E	TO-220F-3FS SC-67	50 pcs./magazine	Pb-Free

Marking



Electrical Connection

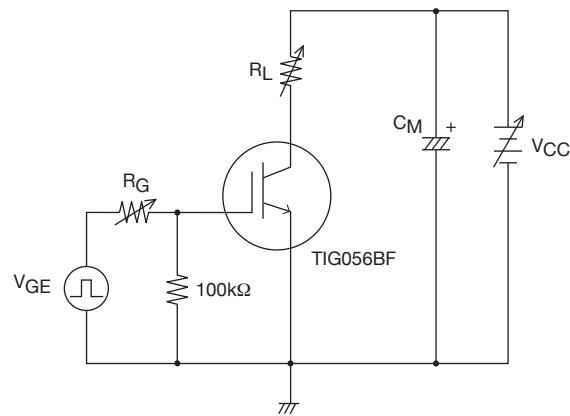


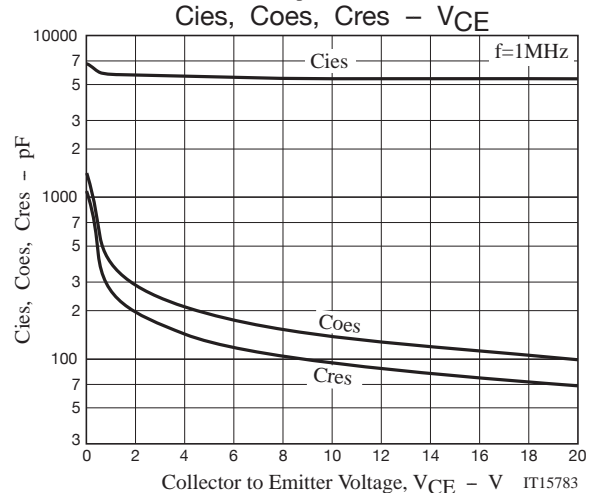
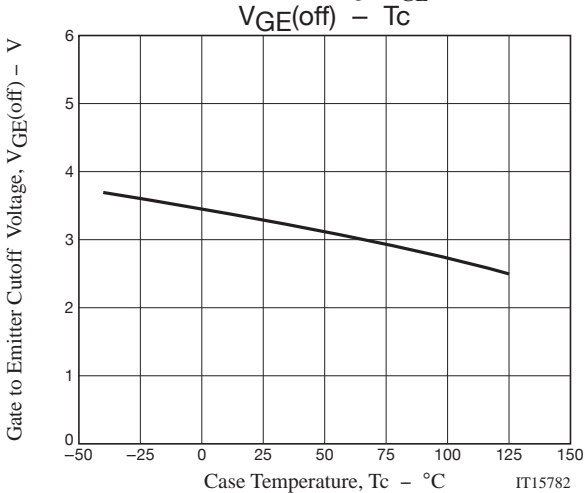
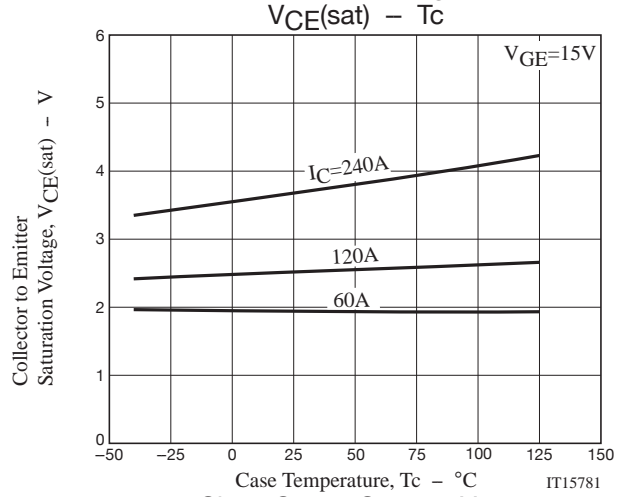
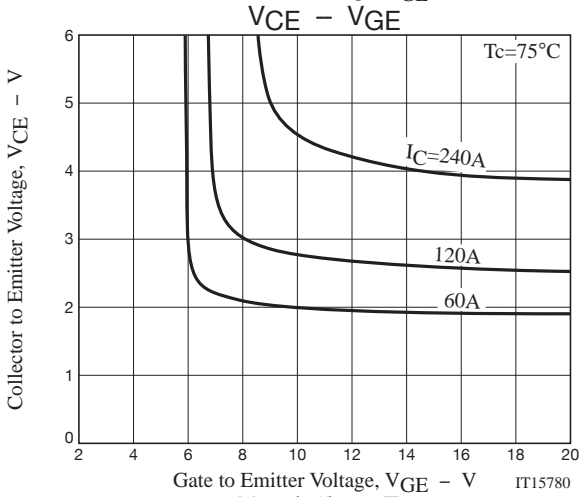
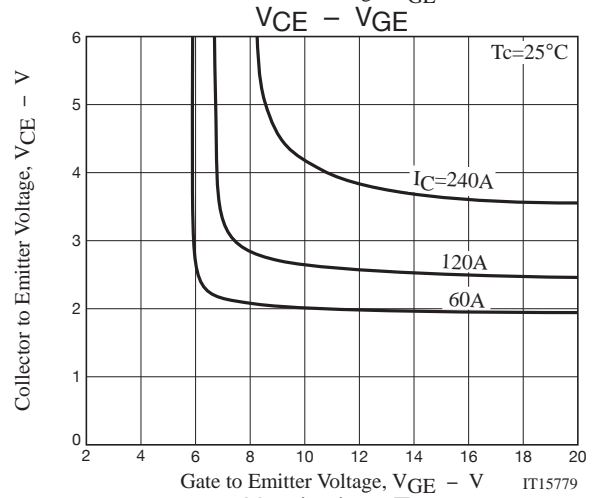
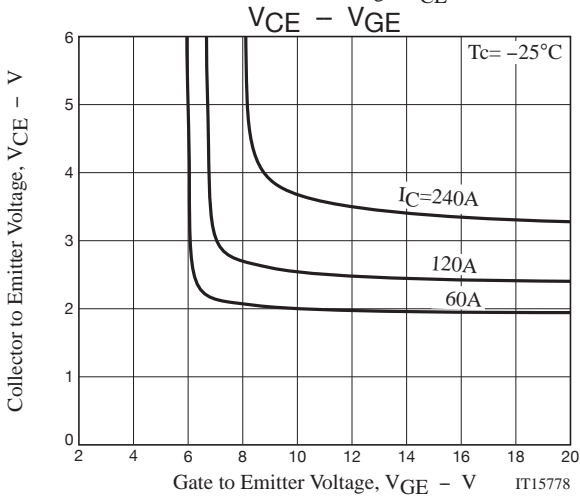
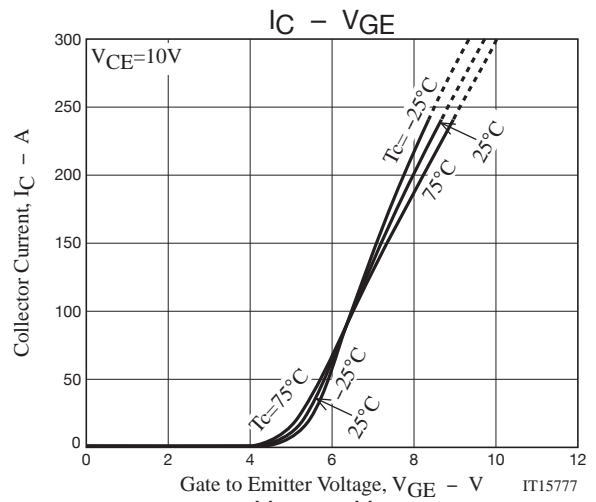
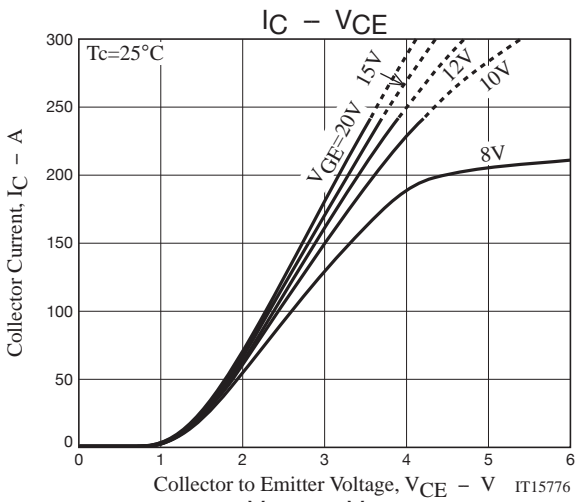
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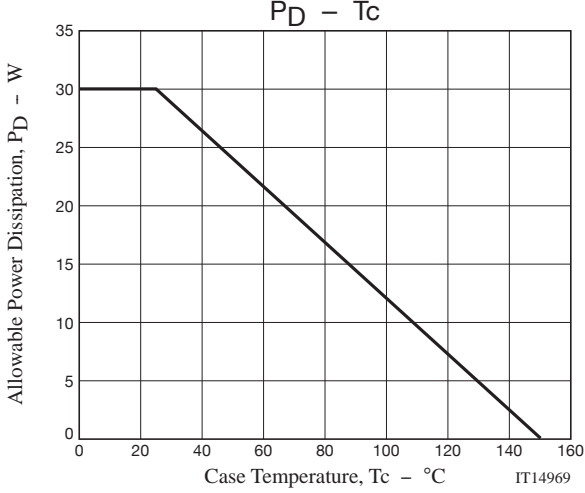
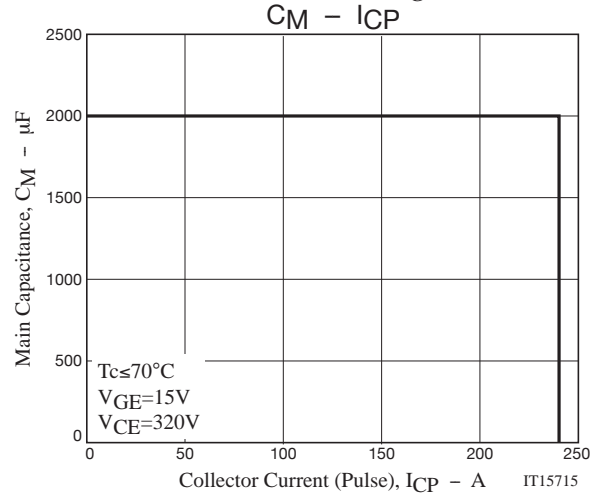
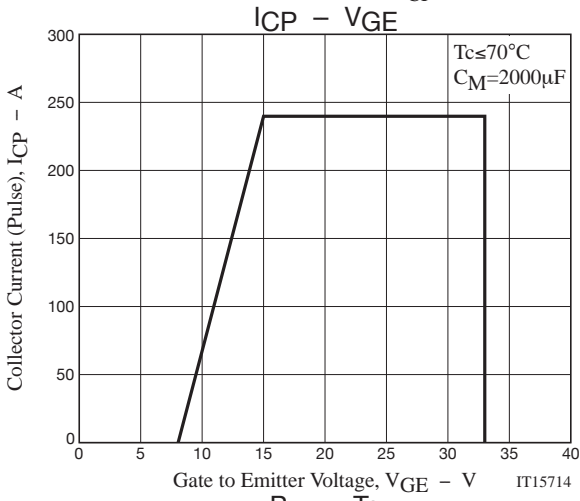
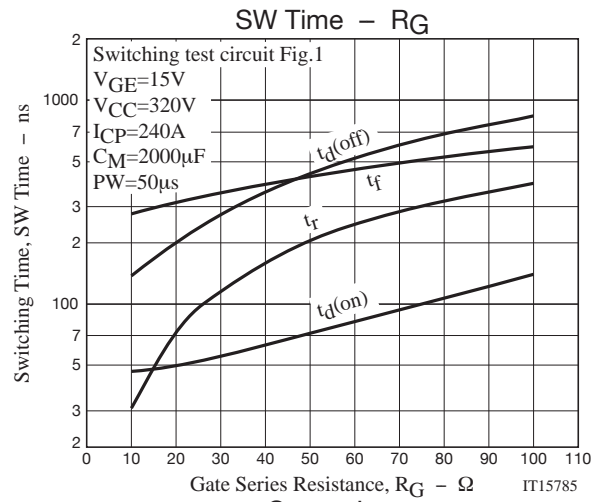
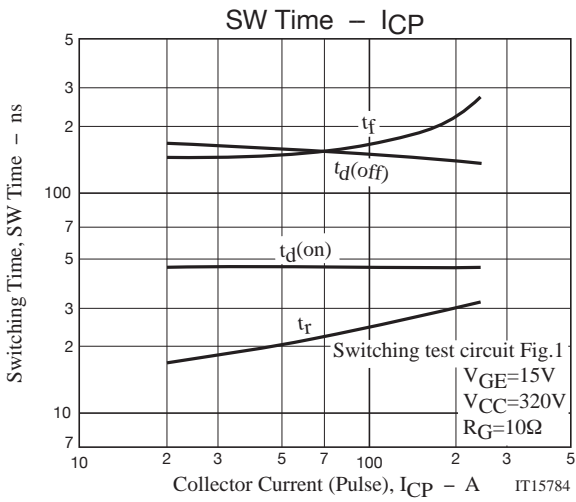
Electrical Characteristics at $T_a=25^\circ\text{C}$

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector to Emitter Breakdown Voltage	$V_{(BR)CES}$	$I_C=2\text{mA}, V_{GE}=0\text{V}$	430			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



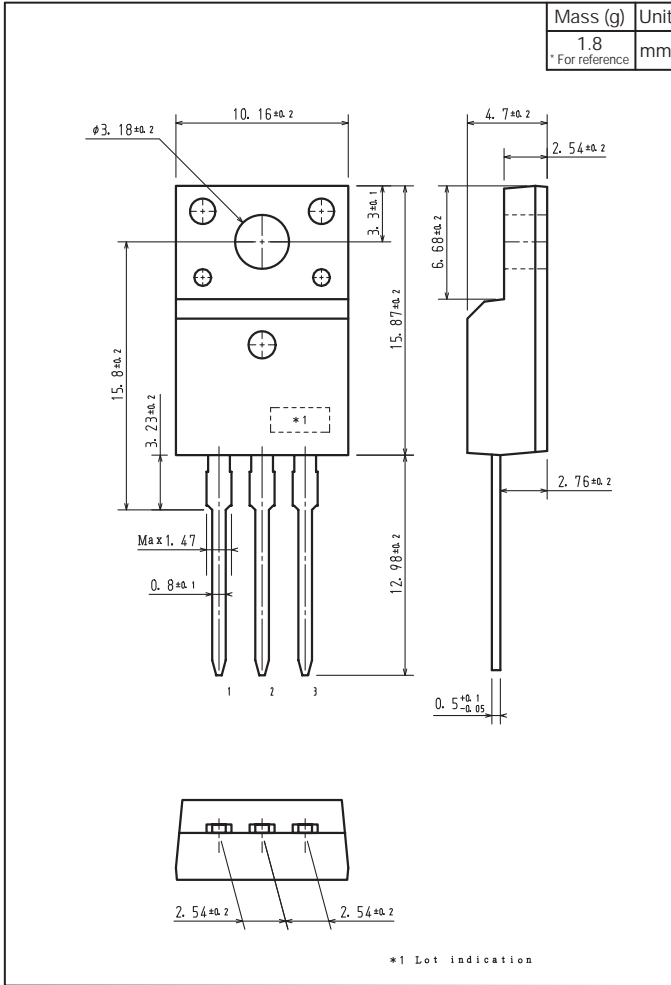




TIG056BF

Outline Drawing

TIG056BF-1E



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

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