HIGH SPEED
NPN POWER TRANSISTORS

GE13070P
GE13071P

400 & 450 VOLTS
5 AMPS, 100 WATTS

The GE13070P and GE13071P transistors are designed for high-voltage, high-speed power switching in inductive circuits where fall time is critical. They are particularly suited for line-operated switch-mode applications such as:

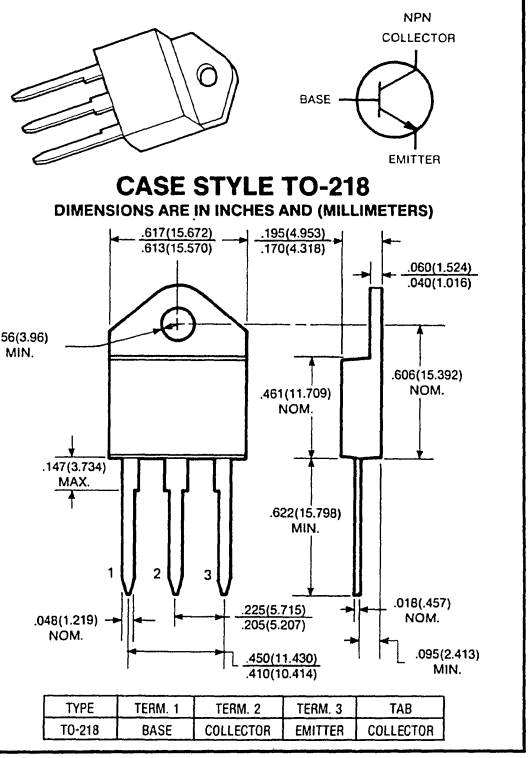
Features:

- Switching regulators
- Inverters
- Solenoid and relay drivers
- Motor controls
- Deflection circuits

Fast Turn-Off Times:
100 ns inductive fall time @ 25°C (Typ)
150 ns inductive crossover time @ 25°C (Typ)
400 ns inductive storage time @ 25°C (Typ)

Operating temperature range -65 to +150°C

100°C Performance Specified for:
Switching times with inductive loads —
Saturation voltages
Leakage currents



TYPE	TERM. 1	TERM. 2	TERM. 3	TAB
TO-218	BASE	COLLECTOR	EMITTER	COLLECTOR

maximum ratings (T_A = 25°C) (unless otherwise specified)

RATING	SYMBOL	GE13070P	GE13071P	UNITS
Collector-Emitter Voltage	V_{CEO}	400	450	Volts
Collector-Emitter Voltage	V_{CEV}	650	750	Volts
Emitter Base Voltage	V_{EBO}	6	6	Volts
Collector Current — Continuous Peak (Repetitive)(1)	I_C I_{CM}	5 8	5 8	A
Base Current — Continuous Peak (Non-Repetitive)(1)	I_B I_{BM}	2 4	2 4	A
Total Power Dissipation @ Tc = 25°C @ Tc = 100°C Derate above 25°C	P_D	100 40 0.8	100 40 0.8	Watts W/°C
Operating and Storage Junction Temperature Range	T_J, T_{STG}	-65 to +150	-65 to +150	°C

thermal characteristics

Thermal Resistance, Junction to Case	$R_{\theta JC}$	1.25	1.25	°C/W
Maximum Lead Temperature for Soldering Purpose: 1/8" from Case for 5 Seconds	T_L	275	275	°C

(1) Pulse Test: Pulse Width = 5ms. Duty Cycle ≤ 10%.

electrical characteristics (T_C = 25° C) (unless otherwise specified)

CHARACTERISTIC	SYMBOL	MIN	TYP	MAX	UNIT
off characteristics[1]					
Collector-Emitter Sustaining Voltage GE13070P (I_C = 100mA, I_B = 0) GE13071P	$V_{CEO(sus)}$	400 450	— —	— —	Volts
Collector Cutoff Current (V_{CEV} = Rated Value, $V_{BE(off)}$ = 1.5V) (V_{CEV} = Rated Value, $V_{BE(off)}$ = 1.5V, T_C = 100° C)	I_{CEV}	— —	— —	0.5 2.5	mA
Collector Cutoff Current (V_{CE} = Rated V_{CEV}, R_{BE} = 50Ω, T_C = 100° C)	I_{CER}	—	—	3.0	mA
Emitter Cutoff Current (V_{EB} = 6V, I_C = 0)	I_{EBO}	—	—	1.0	mA
on characteristics[1]					
DC Current Gain (I_C = 3A, V_{CE} = 5V)	h_{FE}	8	—	—	—
Collector-Emitter Saturation Voltage (I_C = 3A, I_B = .6A) (I_C = 5A, I_B = 1A) (I_C = 3A, I_B = .6A, T_C = 100° C)	$V_{CE(sat)}$	— — —	— — —	1 3 2	V
Base-Emitter Saturation Voltage (I_C = 3A, I_B = .6A) (I_C = 3A, I_B = .6A, T_C = 100° C)	$V_{BE(sat)}$	— —	— —	1.5 1.5	V
switching characteristics					
Resistive Load					
Delay Time (V_{CC} = 250V, I_C = 3A	t_d	—	.03	.05	μs
Rise Time I_{B1} = .4A, t_p = 30 μs	t_r	—	.10	.4	
Storage Time Duty Cycle < 2%, $V_{BE(OFF)}$ = 5V)	t_s	—	.4	1.5	
Fall Time	t_f	—	.175	.5	
Inductive Load, Clamped					
Storage Time $I_{C(pk)}$ = 3A (T_J = 100° C)	t_{sv}	—	.7	2	μs
Crossover Time I_{B1} = .4A	t_c	—	.28	.5	
Fall Time $V_{BE(off)}$ = 5V	t_{fi}	—	.15	.3	
Storage Time $V_{CE(PK)}$ = 250V (T_J = 25° C)	t_{sv}	—	.4	—	
Crossover Time	t_c	—	.15	—	
Fall Time	t_{fi}	—	.1	—	

(1) Pulse Test: Pulse Width - 300μs Duty Cycle ≤ 2%.