HIGH SPEED
NPN POWER TRANSISTORS

GE13080P
GE13081P

400-450 VOLTS
8 AMP, 110 WATTS

The GE13080P and GE13081P 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:

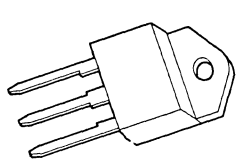
Features:

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

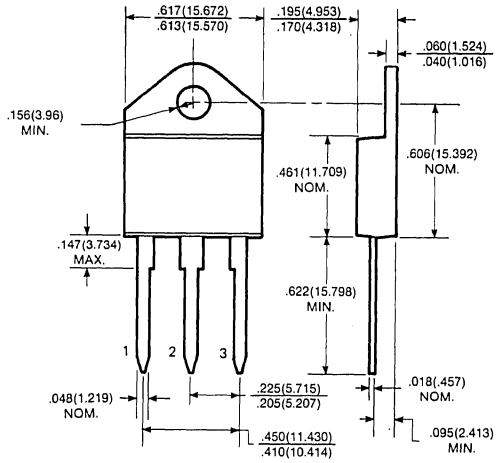
Fast Turn-Off Times:
100 ns inductive fall time @ 25°C (Typ)
150 ns inductive crossover time @ 25°C (Typ)
400 ns inductive storage time @ 25°C (Typ)

Operating temperature range -65 to +150°C

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



CASE STYLE TO-218
DIMENSIONS ARE IN INCHES AND (MILLIMETERS)



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	GE13080P	GE13081P	UNITS
Collector-Emitter Voltage	V_{CEO}	400	450	Volts
Collector-Emitter Voltage	V_{CEV}	650	750	Volts
Emitter Base Voltage	V_{EBO}	6.0	6.0	Volts
Collector Current — Continuous Peak(1)	I_C I_{CM}	8.0 12	8.0 12	A
Base Current — Continuous	I_B	3.0	3.0	A
Total Power Dissipation @ Tc = 25°C @ Tc = 100°C Derate above 25°C	P_D	110 44 .88	110 44 .88	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	$R_{\theta JC}$	1.1	1.1	°C/W
Maximum Lead Temperature for Soldering Purpose: ⅛" from Case for 5 Seconds	T_L	260	260	°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 (I_C = 100mA, I_B = 0)	GE13080P	$V_{CEO(sus)}$	400	—	—	Volts
	GE13081P		450	—	—	
Collector Cutoff Current (V_{CEV} = Rated Value, $V_{BE(off)}$ = 1.5V)		I_{CEV}	—	—	0.5	mA
(V_{CEV} = Rated Value, $V_{BE(off)}$ = 1.5V, T_C = 100°C)			—	—	2.5	
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} = 6.0V, I_C = 0)		I_{EBO}	—	—	1.0	mA
on characteristics[1]						
DC Current Gain (I_C = 5.0A, V_{CE} = 3.0V)		h_{FE}	8.0	—	—	—
Collector-Emitter Saturation Voltage (I_C = 5.0A, I_B = 1.0A)		$V_{CE(sat)}$	—	—	1.0	V
(I_C = 8.0A, I_B = 1.6A)			—	—	3.0	
(I_C = 5.0A, I_B = 1.0A, T_C = 100°C)			—	—	2.0	
Base-Emitter Saturation Voltage (I_C = 5.0A, I_B = 1.0A)		$V_{BE(sat)}$	—	—	1.5	V
(I_C = 5.0A, I_B = 1.0A, T_C = 100°C)			—	—	1.5	
dynamic characteristics						
Output Capacitance (V_{CB} = 10V, I_E = 0A, f_{test} = 1.0 kHz)		C_{ob}	—	—	300	pF
switching characteristics						
Resistive Load						
Delay Time	(V_{CC} = 250V, I_C = 5.0A	t_d	—	0.025	0.05	μs
Rise Time	I_{B1} = 0.7A, t_p = 30 μs	t_r	—	0.10	0.50	
Storage Time	Duty Cycle < 2%, $V_{BE(OFF)}$ = 5.0V)	t_s	—	0.50	1.50	
Fall Time		t_f	—	0.15	0.50	
Inductive Load, Clamped						
Storage Time	$I_{C(pk)}$ = 5.0A (T_J = 100°C)	t_{sv}	—	0.75	2.20	μs
Crossover Time	I_{B1} = 0.7A	t_c	—	0.22	0.40	
Fall Time	$V_{BE(off)}$ = 5.0V	t_{fi}	—	0.175	0.35	
Storage Time	$V_{CE(PK)}$ = 250V (T_J = 25°C)	t_{sv}	—	0.40	—	
Crossover Time		t_c	—	0.15	—	
Fall Time		t_{fi}	—	0.10	—	

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