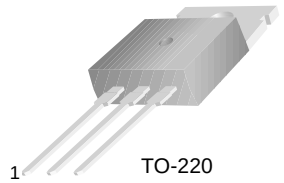
FAIRCHILD
SEMICONDUCTOR®

KSE5740/5741/5742

High Voltage Power Switching In Inductive Circuits

- High Voltage Power Darlington TR
- Small Engine Ignition
- Switching Regulators
- Inverters
- Solenold and Relay Drivers
- Motor Control



TO-220

1.Base 2.Collector 3.Emitter

NPN Silicon Darlington Transistor

Absolute Maximum Ratings T_C=25°C unless otherwise noted

Symbol	Parameter	Value	Units
BV_{CEO}(sus)	Collector-Emitter Sustaining Voltage		
	: KSE5740	300	V
	: KSE5741	350	V
	: KSE5742	400	V
V_{CEV}	Collector-Emitter Voltage : KSE5740	600	V
	: KSE5741	700	V
	: KSE5742	800	V
V_{EBO}	Emitter-Base Voltage	8	V
I_C	Collector Current (DC)	8	A
I_{CP}	*Collector Current (Pulse)	16	A
I_B	Base Current (DC)	2.5	A
I_{BP}	*Base Current (Pulse)	5	A
P_C	Collector Dissipation	80	W
T_J	Junction Temperature	150	°C
T_{STG}	Storage Temperature	- 65 ~ 150	°C

Electrical Characteristics T_C=25°C unless otherwise noted

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Units
V_{CEO}(sus)	Collector-Emitter Sustaining Voltage					
	: KSE5740	I_C = 50mA, I_B=0	300			V
	: KSE5741		350			V
	: KSE5742		400			V
I_{CEV}	Collector Cut-off Current	V_{CEV}=Rate Value, $V_{BE(OFF)}$=1.5V			1	mA
I_{EBO}	Emitter Cut-off Current	V_{EB} = 8V, I_C= 0			75	mA
h_{FE}	DC Current Gain	V_{CE} =5V, I_C = 0.5A	50	100		
		V_{CE} =5V, I_C = 4A	200	400		
V_{CE}(sat)	Collector-Emitter Saturation Voltage	I_C =4A, I_B = 0.2A			2	V
		I_C =8A, I_B= 0.4A			3	V
V_{BE}(sat)	Base-Emitter Saturation Voltage	I_C =4A, I_B = 0.2A			2.5	V
		I_C =8A, I_B = 0.4A			3.5	V
V_F	Diode Forward Voltage	I_F =5A			2.5	V
t_D	Delay Time	V_{CC} = 250V, I_C(pk) = 6A		0.04		µs
t_R	Rise Time	I_{B1} = I_{B2} = 0.25A		0.5		µs
t_S	Storage Time	t_P = 25µs		8		µs
t_F	Fall Time	Duty Cycle≤1%		2		µs
t_{SV}	Voltage Storage Time	I_C(pk) = 6A, V_{CE}(pk) = 250V		4		µs
t_C	Cross-over Time	I_B1= 0.06A, V_{BE} (off) = 5V		2		µs

* PW=5ms, Duty Cycle=10%

Typical Characteristics

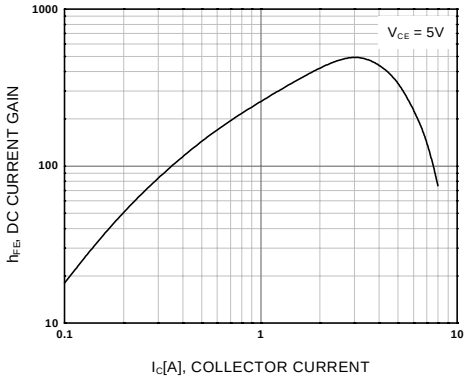


Figure 1. DC current Gain

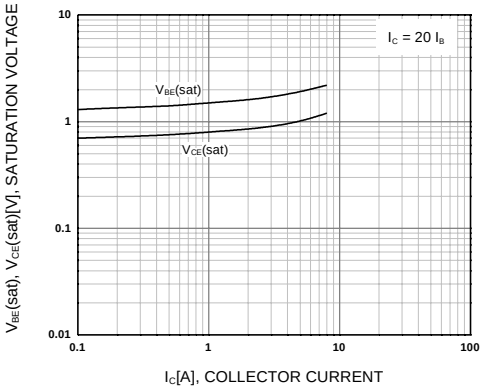


Figure 2. Base-Emitter Saturation Voltage Collector-Emitter Saturation Voltage

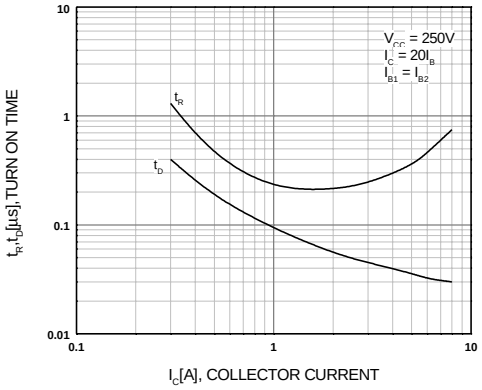


Figure 3. Turn On Time

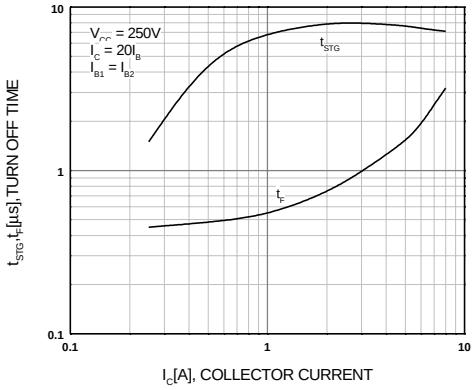


Figure 4. Turn Off Time

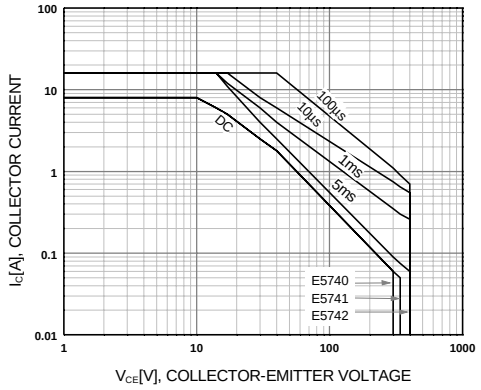


Figure 5. Safe Operating Area

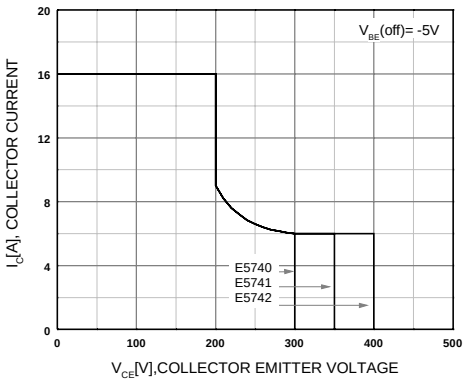


Figure 6. Reverse Bias Safe Operating Area

Typical Characteristics (Continued)

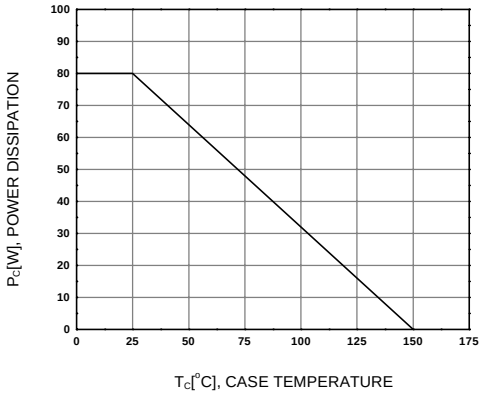
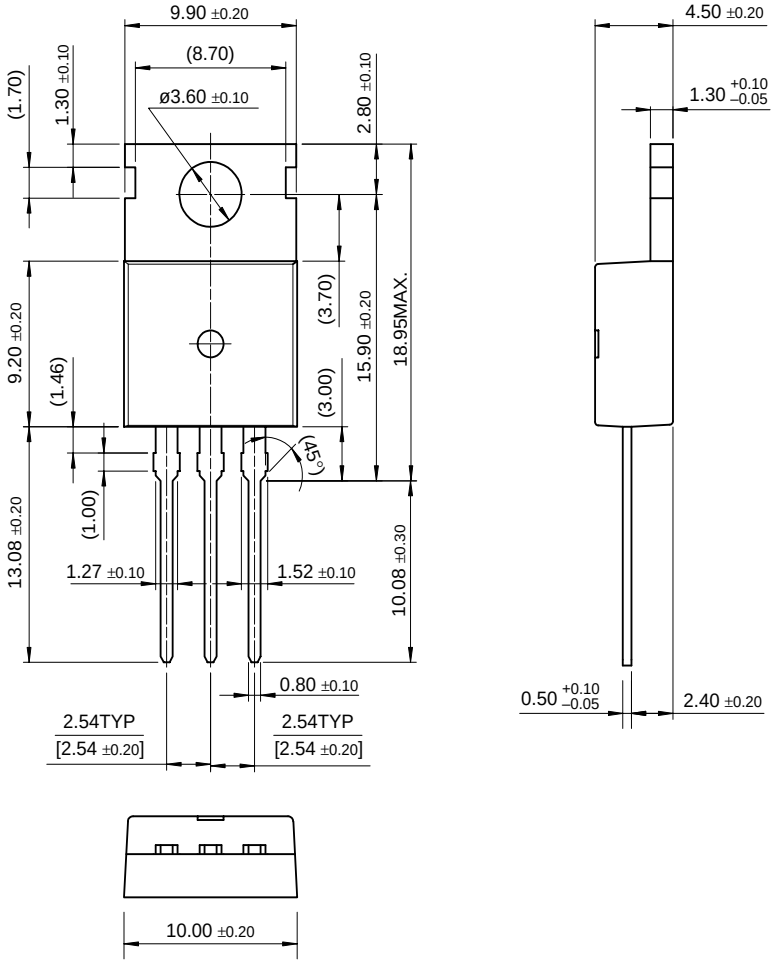


Figure 1. Power Derating

Package Demensions

TO-220



Dimensions in Millimeters

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E^2CMOS™	LittleFET™	QT Optoelectronics™	TinyLogic™
EnSigna™	MicroFET™	Quiet Series™	UHC™
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