Wuxi Yaren Technology Co.,Ltd.

YR BY941

NPN POWER DARLINGTON HIGH VOLTAGE IGNITION COIL DRIVER

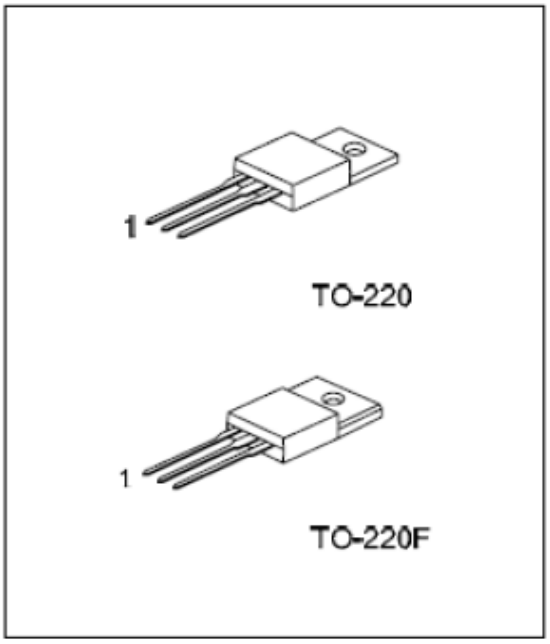
FEATURES

*NPN darlington

*Integrated antiparallel collector-emitter diode

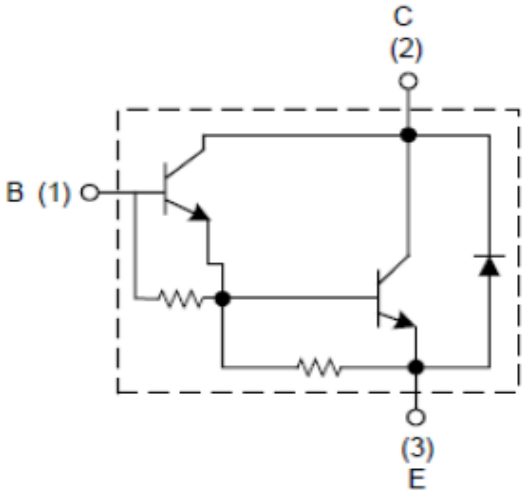
APPLICATIONS

* High ruggedness electric ignitions



1: BASE 2:COLLECTOR 3: EMITTER

INTERNAL SCHEMATIC DIAGRAM



ABSOLUTE MAXIMUM RATINGS

PARAMETER	SYMBOL	RATINGS	UNIT
Collector-Emitter Voltage	V_{CES}	500	V
Collector-Emitter Voltage	V_{CEO}	400	V
Emitter-Base Voltage	V_{EBO}	5	V
Collector Current	I_C	15	A
Collector Peak Current	I_{CM}	30	A
Base Current	I_B	1	A
Base Peak Current	I_{BM}	5	W
Total Dissipation (Tc=25°C)	Ptot	150	W
Storage Temperature	T_{stg}	-65 ~ 175	°C
Operating Junction Temperature	T_j	175	°C

ELECTRICAL CHARACTERISTICS (Tc=25°C, unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Collector-Emitter Sustaining Voltage	$V_{CEO(sus)}$*	I_C=100mA, Vclamp=400V, L=10mH (see fig. 1)	400			V
Collector Cut-off Current	I_{CES}	V_{CE}=500V, V_{BE}=0 V_{CE}=500V, V_{BE}=0, T_j=125°C			100 0.5	μA mA
Collector Cut-off Current	I_{CEO}	V_{CE}=450V, I_B=0 V_{CE}=450V, I_B=0, T_j=125°C			100 0.5	μA mA
Emitter Cut-off Current	I_{EBO}	V_{EB}=5V, I_C=0			20	mA
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$*	I_C=8A, I_B=100mA I_C=10A, I_B=250mA I_C=12A, I_B=300mA			1.6 1.8 2	V
Base-Emitter Saturation Voltage	$V_{BE(sat)}$*	I_C=8A, I_B=100mA I_C=10A, I_B=250mA I_C=12A, I_B=300mA			2.2 2.5 2.7	V
DC Current Gain	H_{FE}*	V_{CE}=10V, I_C=5A,	300			
Diode Forward Voltage	V_F	I_F=10A			2.5	V
Functional Test		Vcc=24V, Vclamp=400V, L=7mH (see Functional Test Circuit)	10			A
Fall Time	t_f	Vcc=12V, Vclamp=300V, V_{BE}=0,		15		μs
Storage Time	t_s	R_{BE}=47Ω, L=7mH, I_C=7A, I_B=70mA (see fig.2)		0.5		μs

*Pulsed: Pulse duration=300μs, duty cycle 1.5%

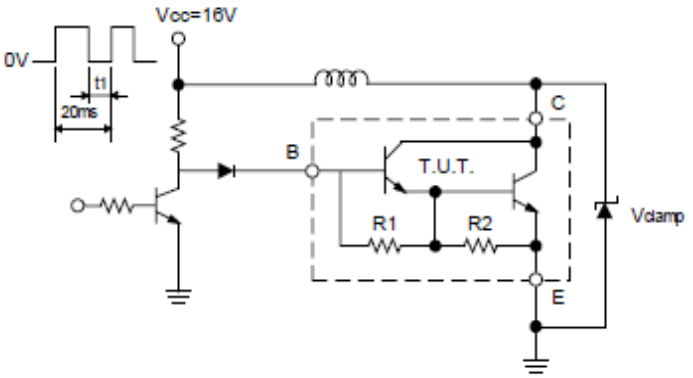


Fig. 1 Sustaining Voltage Test Circuit

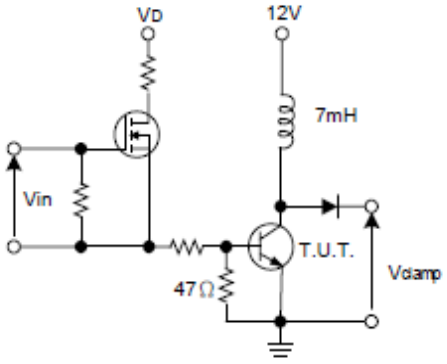
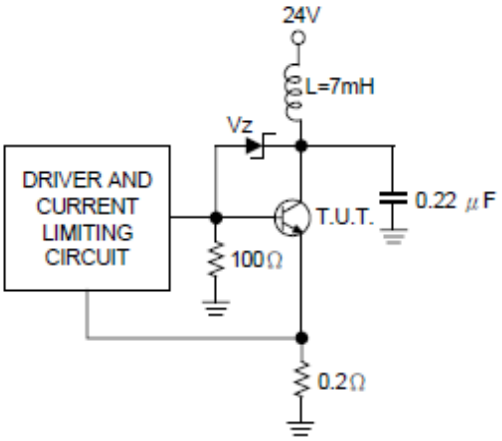
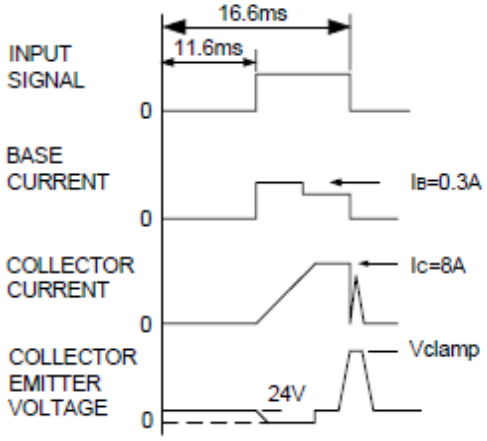
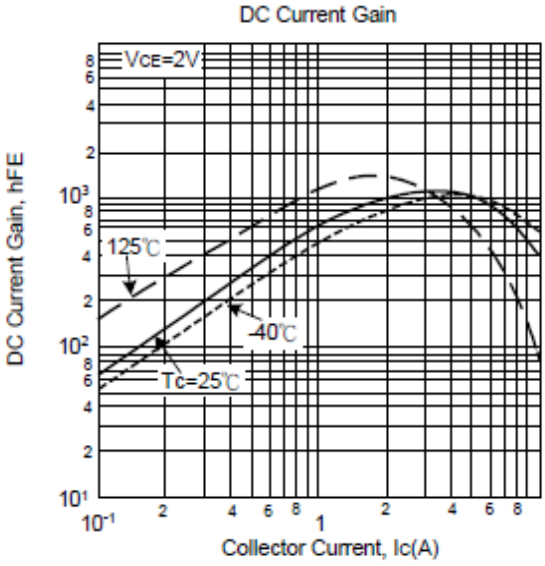


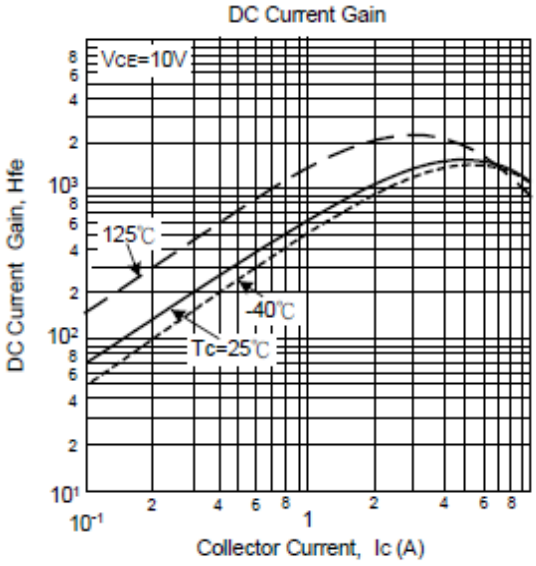
Fig. 2 Switching Time Test Circuit

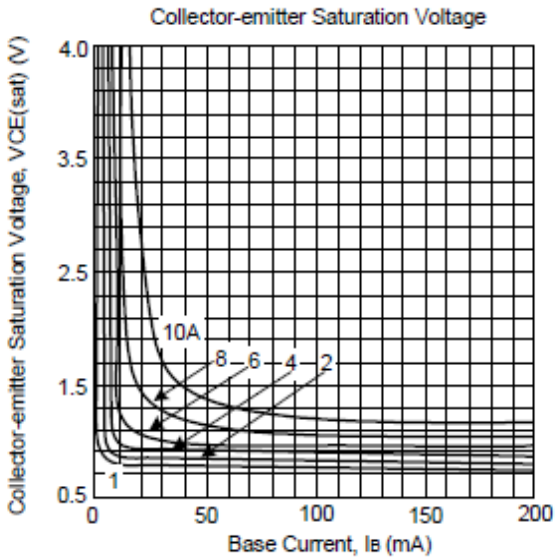
FUNCTION TEST CIRCUIT

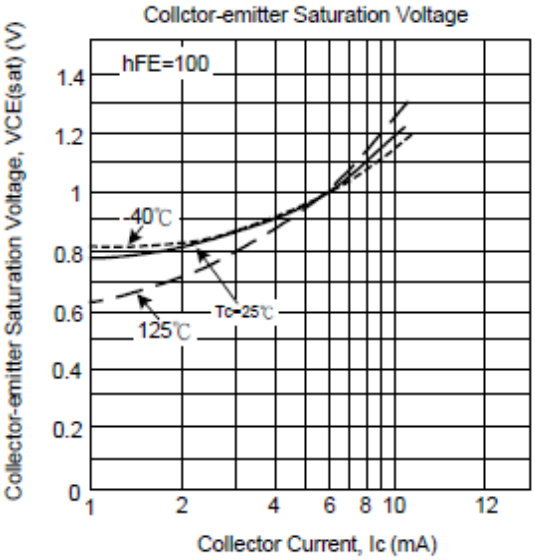




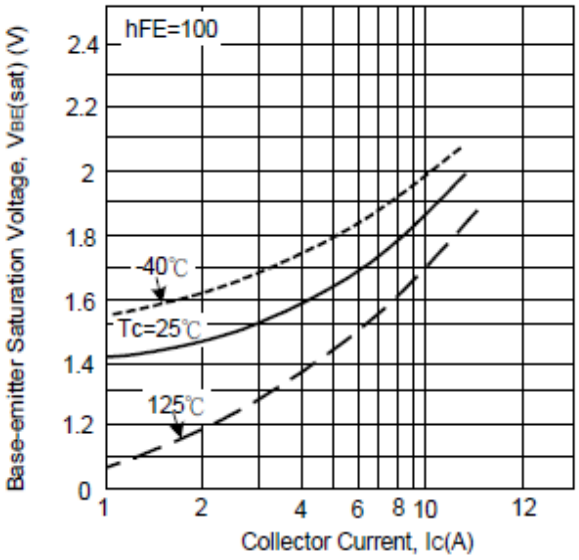




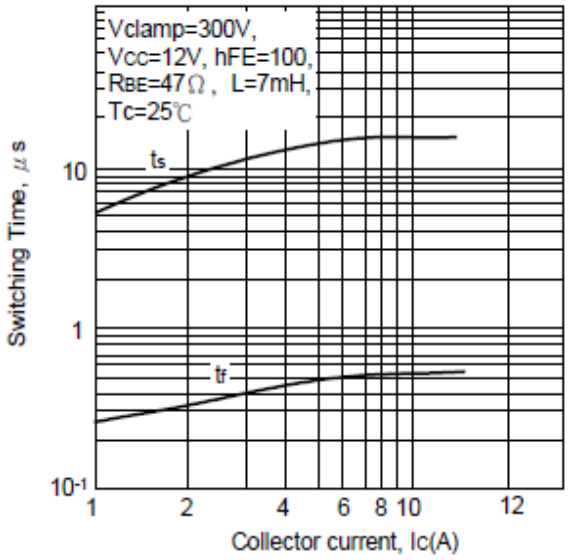




Base-emitter Saturation Voltage



Switching Time



Safe Operating Area