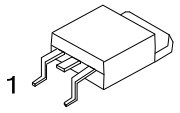
NPN DARLINGTON POWER TRANSISTOR



TO-252

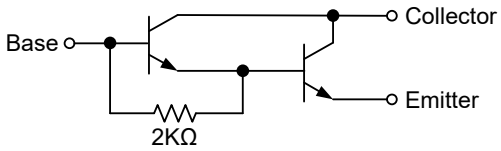
■ DESCRIPTION

The UTC **UDN3504** is high voltage power Darlington has been specifically designed for inductive applications such as Electronic Ignition, Switching Regulators and Motor Control.

■ FEATURES

* Exceptional Safe Operating Area
* High V_{CE}; High Current Gain

■ EQUIVALENT CIRCUIT



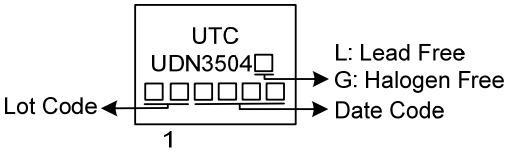
■ ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
UDN3504L-TN3-R	UDN3504G-TN3-R	TO-252	B	C	E	Tape Reel

Note: Pin Assignment: B: Base C: Collector E: Emitter

UDN3504G-TN3-R (1)Packing Type (2)Package Type (3)Green Package	(1) R: Tape Reel (2) TN3: TO-252 (3) G: Halogen Free and Lead Free, L: Lead Free

■ MARKING



■ ABSOLUTE MAXIMUM RATING (T_A=25°C, unless otherwise specified)

PARAMETER		SYMBOL	RATINGS	UNIT
Collector-Base Breakdown Voltage		V_{CBO}	700	V
Collector-Emitter Sustaining Voltage		V_{CEO}	300	V
Collector−Emitter Breakdown Voltage		V_{CES}	700	V
Emitter-Base Voltage		V_{EBO}	5	V
Collector Current	DC	I_C	4	A
	Pulse(Note 2)	I_{CM}	8	A
Base Current		I_B	0.5	A
Collector Dissipation	T_C=25°C	P_D	45	W
Junction Temperature		T_J	+150	°C
Storage Temperature		T_{STG}	-65 ~ +150	°C

Notes: 1. Absolute maximum ratings are those values beyond which the device could be permanently damaged. Absolute maximum ratings are stress ratings only and functional device operation is not implied.
2. Pulse test: Pulse Width=100ms.

■ THERMAL DATA

PARAMETER	SYMBOL	RATINGS	UNIT
Junction to Ambient	θ_{JA}	75	°C/W
Junction to Case	θ_{JC}	2.78	°C/W

Note: Device mounted on FR-4 substrate P_C board, 2oz copper, with 1inch square copper plate.

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

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
OFF CHARACTERISTICS						
Collector-Base Breakdown Voltage	BV_{CBO}	I_C=100μA, I_E=0	700			V
Collector-Emitter Saturation Voltage	$BV_{CEO(SUS)}$	I_C=10mA	300			V
Collector Cutoff Current	I_{CES}	V_{CE}=500V,I_B=0			50	μA
Collector Cutoff Current	I_{CEO}	V_{CE}=250V,I_B=0			50	μA
Emitter Cutoff Current	I_{EBO}	V_{EB}=5V, I_C=0			5	μA
ON CHARACTERISTICS						
Collector-Emitter Saturation Voltage	$V_{CE(SAT)}$	I_C=2A, I_B=20mA			1.5	V
Base-Emitter Saturation Voltage	$V_{BE(SAT)}$	I_C=2A, I_B=20mA			2.0	V
Base-Emitter Turn-On Voltage	$V_{BE(ON)}$	I_C=2A, V_{CE}=2V			2.0	V
DC Current Gain	h_{FE}	I_C=2A, V_{CE}=2V	1000			
		I_C=2A, V_{CE}=4V	100			
DYNAMIC CHARACTERISTICS						
Current-Gain Bandwidth Product	f_T	I_C=2A, V_{CE}=10V, f=1MHz	90			MHz
Output Capacitance	C_{ob}	V_{CB}=10V, I_E=0, f=0.1MHz		60		pF