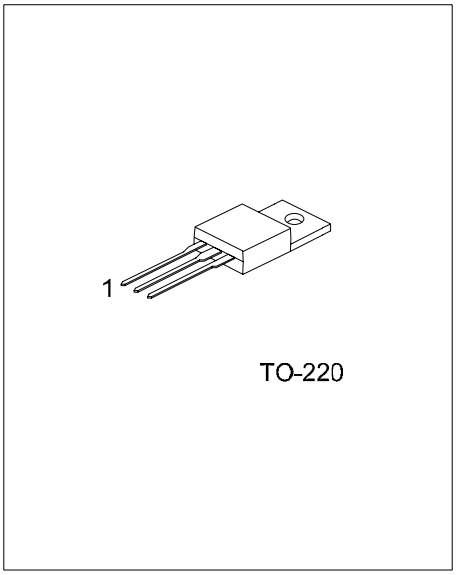
2SC4242

NPN SILICON TRANSISTOR

SWITCHMODE SERIES NPN POWER TRANSISTORS



*Pb-free plating product number: 2SC4242L

■ DESCRIPTION

The UTC 2SC4242 is a high-voltage, high-speed switching power transistor and designed particularly for 115 and 220V switch mode applications, such as switching regulators, inverters, DC-DC converter and general purpose power amplifiers.

■ FEATURES

* Low saturation voltage.
* Switching time: t_F=0.5 μs (Max.)@ I_C=5.0A
* High reliability

■ ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Normal	Lead Free Plating		1	2	3	
2SC4242-TA3-T	2SC4242L-TA3-T	TO-220	B	C	E	Tube

2SC4242L-TA3-T (1)Packing Type (2)Package Type (3)Lead Plating	(1) T: Tube (2) TA3: TO-220 (3) L: Lead Free Plating, Blank: Pb/Sn

■ ABSOLUTE MAXIMUM RATINGS

PARAMETER		SYMBOL	RATINGS	UNIT
Collector-Emitter Voltage		V_{CEO}	400	V
Collector-Base Voltage		V_{CBO}	450	V
Emitter-Base Voltage		V_{EBO}	8.0	V
Collector Current	Continuous	I_C	7.0	A
	Peak	I_{CM}	14	
Base Current		I_B	2.0	A
Total Power Dissipation @T_C=25°C		P_D	40	W
Derate Above 25°C			0.32	W/°C
Junction Temperature		T_J	+150	°C
Storage Temperature		T_{STG}	-40 ~ +150	°C

Note: 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.

■ THERMAL DATA

PARAMETER	SYMBOL	RATINGS	UNIT
Thermal Resistance Junction -Case	θ_{JC}	4	°C/W

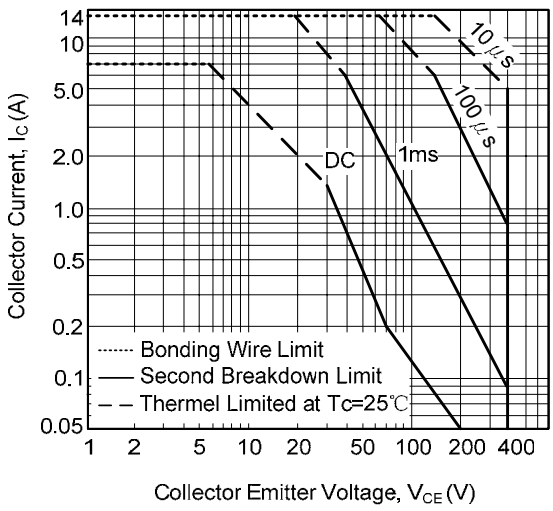
■ ELECTRICAL CHARACTERISTICS (T_C=25°C, unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
OFF CHARACTERISTICS						
Collector-Emitter Sustaining Voltage	BV_{CEO}	I_{CEO}=100mA, I_B=0	400			V
Collector-Base Breakdown Voltage	BV_{CBO}	I_{CBO}=1.0mA, I_E=0	450			V
Emitter-Base Breakdown Voltage	BV_{EBO}	I_{EBO}=1.0mA, I_C=0	8.0			V
Collector Cutoff Current	I_{CBO}	V_{CBO}=450V, I_E=0			100	μA
Emitter Cutoff Current	I_{EBO}	V_{EBO}=8.0V, I_C=0			100	μA
ON CHARACTERISTICS						
DC Current Gain	h_{FE}	I_C=4.0A, V_{CE}=5.0V	10			
Collector-Emitter Saturation Voltage	$V_{CE\ (SAT)}$	I_C=4.0A, I_B=800mA			0.8	V
Base-Emitter Saturation Voltage	$V_{BE\ (SAT)}$	I_C=4.0A, I_B=800mA			1.2	V
SWITCHING CHARACTERISTICS						
On Time	t_{ON}	V_{CC}=150V, I_C=5.0A I_{B1}= -I_{B2}=1.0A, R_L=30Ω			1.0	μs
Storage Time	t_S				2.5	μs
Fall Time	t_F				0.5	μs

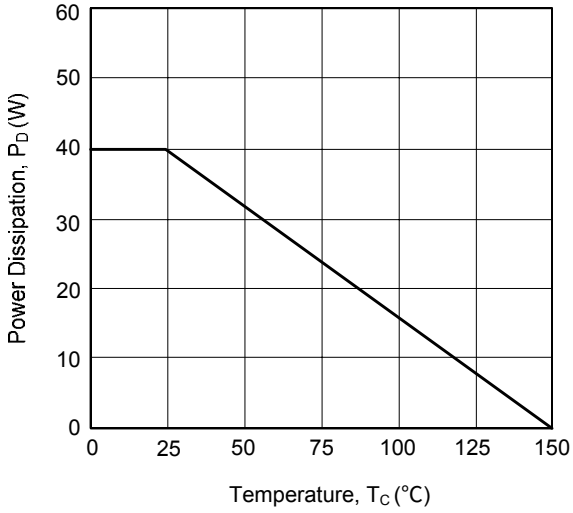
Note: Pulse Test: Pulse Width=300μs, Duty Cycle ≤ 2.0%

■ TYPICAL CHARACTERISTIC

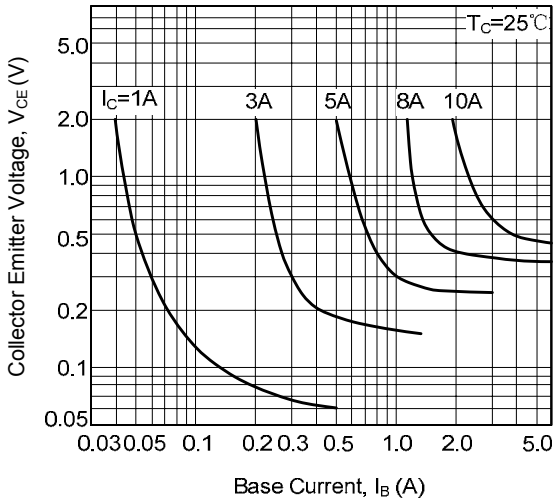
Active-Region Safe Operating Area (SOA)



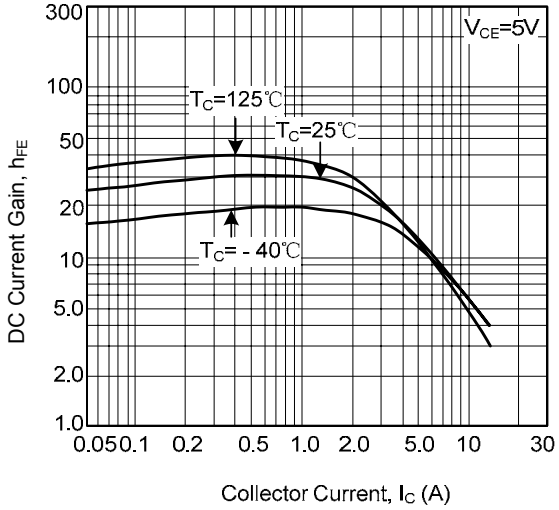
Power Derating



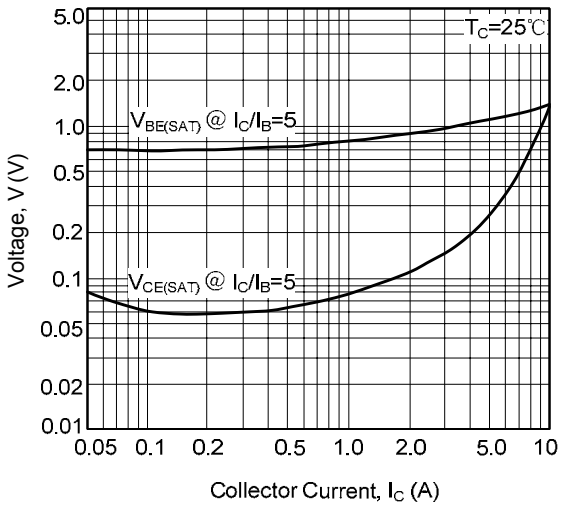
Collector Saturation Region



DC Current Gain



"ON" Voltages



Switching Time