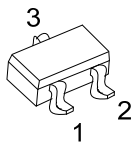
UN1518

NPN SILICON TRANSISTOR

POWER (SWITCHING) TRANSISTOR



SOT-23
(JEDEC TO-236)

■ FEATURES

* Bipolar Power Transistor
* High Current Switching
* High h_{FE}
* Low $V_{CE(SAT)}$

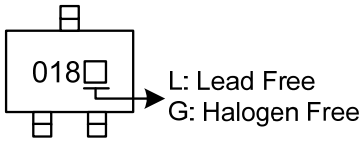
■ ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
UN1518L-AE3-R	UN1518G-AE3-R	SOT-23	B	E	C	Tape Reel

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

UN1518G-AE3-R (1)Packing Type (2)Package Type (3)Green Package	(1) R: Tape Reel (2) AE3: SOT-23 (3) G: Halogen Free and Lead Free, L: Lead Free

■ MARKING



■ ABSOLUTE MAXIMUM RATINGS (T_C = 25°C, unless otherwise stated)

PARAMETER		SYMBOL	RATINGS	UNIT
Collector-Base Voltage		V_{CBO}	20	V
Collector-Emitter Voltage		V_{CEO}	20	V
Emitter-Base Voltage		V_{EBO}	5	V
Collector Current	Pulse (Note 2)	I_{CM}	6	A
	DC	I_C	2.5	A
Base Current		I_B	500	mA
Total Device Dissipation		P_D	625	mW
Storage Temperature		T_{STG}	-50 ~ +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 width=300μs. Duty cycle ≤2%.

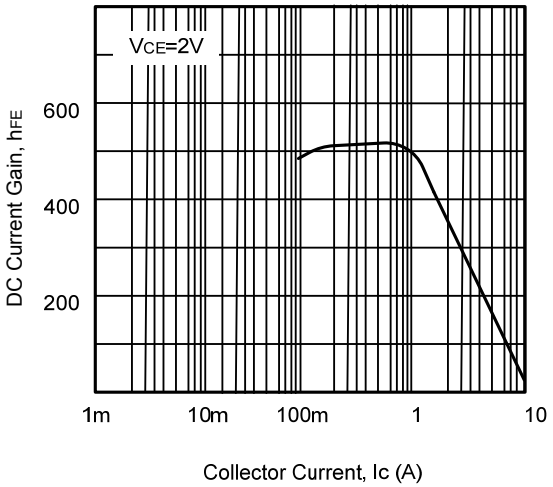
■ ELECTRICAL CHARACTERISTICS

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Collector-Base Breakdown Voltage	BV_{CBO}	I_C=100μA	20	100		V
Collector-Emitter Breakdown Voltage	BV_{CEO}	I_C=10mA (Note)	20	27		V
Emitter-Base Breakdown Voltage	BV_{EBO}	I_E=100μA	5	8.3		V
Collector Cut-Off Current	I_{CBO}	V_{CB}=16V			100	nA
Emitter Cut-Off Current	I_{EBO}	V_{EB}=4V			100	nA
Collector Emitter Cut-Off Current	I_{CES}	V_{CES}=16V			100	nA
Collector-Emitter Saturation Voltage (Note)	$V_{CE(SAT)}$	I_C=0.1A, I_B=10mA		10	15	mV
		I_C=1A, I_B=10mA		70	150	mV
		I_C=2.5A, I_B=50mA		200	250	mV
Base-Emitter Saturation Voltage (Note)	$V_{BE(SAT)}$	I_C=2.5A, I_B=50mA		0.89	1.0	V
Base-Emitter Turn-On Voltage (Note)	$V_{BE(ON)}$	V_{CE}=2V, I_C=2.5A		0.79	1.0	V
DC Current Gain (Note)	h_{FE}	V_{CE}=2V, I_C=10mA	200	400		
		V_{CE}=2V, I_C=200mA	300	450		
		V_{CE}=2V, I_C=2A	200	360		
		V_{CE}=2V, I_C=6A	100	180		
Transition Frequency	f_T	V_{CE}=10V, I_C=50mA, f=100MHz	100	140		MHz
Output Capacitance	C_{OB}	V_{CB}=10V, f=1MHz		23	30	pF
Turn-On Time	$t_{(ON)}$	V_{CC}=10V, I_C=1A I_{B1}=-I_{B2}=10mA		170		nS
Turn-Off Time	$t_{(OFF)}$			400		nS

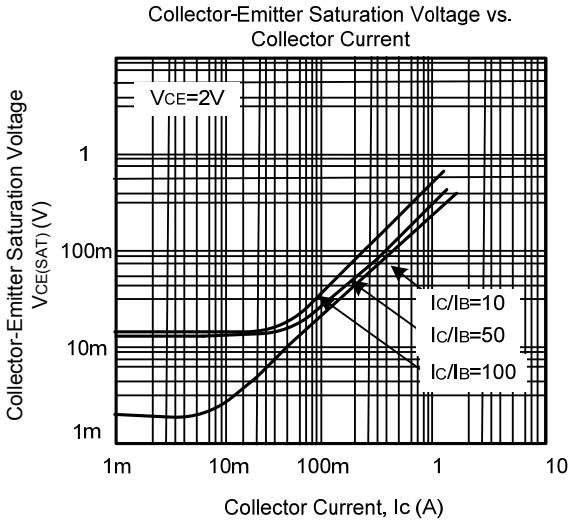
Note: Pulse Test: Pulse Width≤300μs, Duty Cycle≤2.0%.

■ TYPICAL CHARACTERISTICS (T_A=25°C)

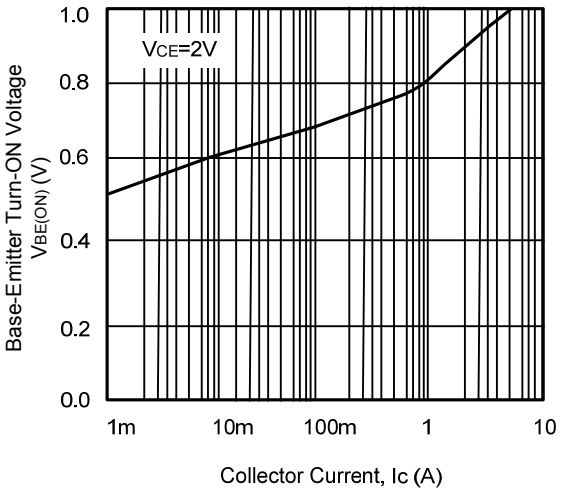
DC Current Gain vs. Collector Current



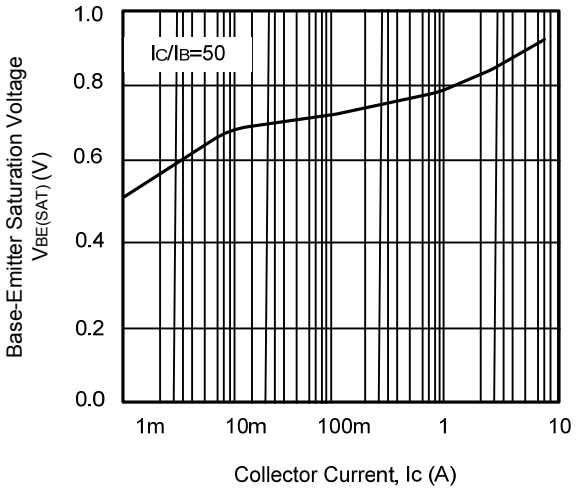
Collector-Emitter Saturation Voltage vs. Collector Current



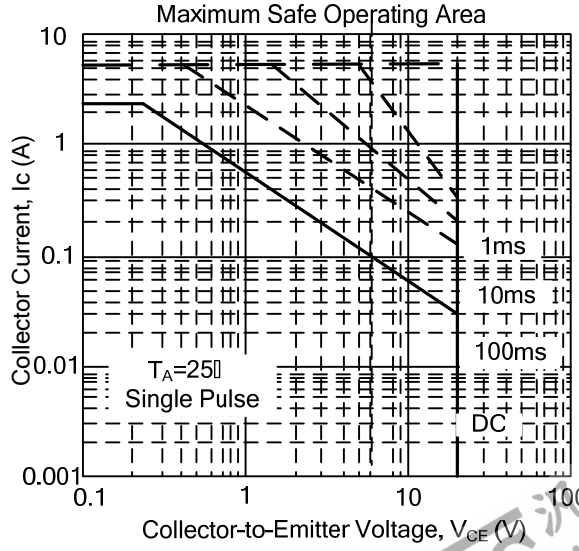
Base-Emitter Turn-ON Voltage vs. Collector Current



Base-Emitter Saturation Voltage vs. Collector Current



Maximum Safe Operating Area



Effective Transient Thermal Impedance