



UNISONIC TECHNOLOGIES CO.,

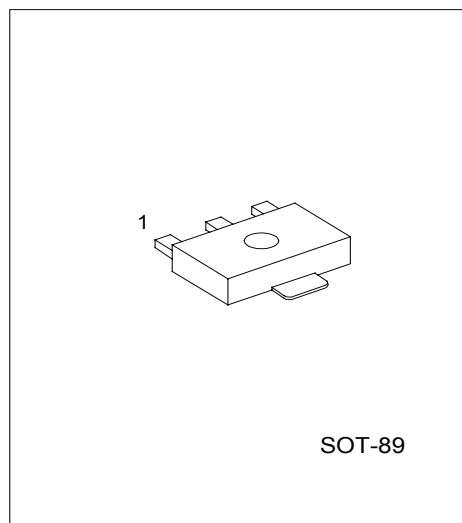
2SC3648

NPN EPITAXIAL SILICON TRANSISTOR

**HIGH-VOLTAGE SWITCHING
PREDRIVER APPLICATIONS**

■ **FEATURES**

- * High breakdown voltage and large current capacity
- * Fast switching speed
- * Over Current Protection Function



SOT-89

*Pb-free plating product number: 2SC3648L

■ **PIN CONFIGURATION**

PIN NO.	PIN NAME
1	Emitter
2	Collector
3	Base

■ **ORDERING INFORMATION**

Order Number		Package	Packing
Normal	Lead free		
2SC3648-AB3-R	2SC3648L-AB3-R	SOT-89	Tape Reel

■ ABSOLUTE MAXIMUM RATINGS (Ta = 25°C)

PARAMETER	SYMBOL	RATINGS	UNIT
Collector to Base Voltage	V_{CBO}	180	V
Collector to Emitter Voltage	V_{CEO}	160	V
Emitter to Base Voltage	V_{EBO}	6	V
Collector Current	I_C	0.7	A
Collector Current (Pulse)	I_{CP}	1.5	A
Collector Dissipation	P_C (Mounted on ceramic board 250mm ² × 0.8mm)	1.3	W
	P_C	500	mW
Junction Temperature	T_J	150	°C
Storage Temperature	T_{STG}	-40 ~ +150	°C

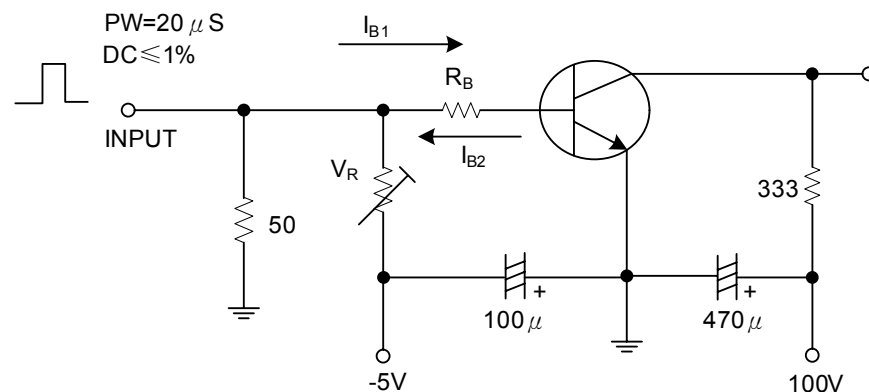
■ ELECTRICAL CHARACTERISTICS (Ta = 25°C, unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
C-E Saturation Voltage	$V_{CE(sat)}$	$I_C = 250\text{mA}$, $I_B = 25\text{mA}$		0.12	0.4	V
B-E Saturation Voltage	$V_{BE(sat)}$	$I_C = 250\text{mA}$, $I_B = 25\text{mA}$		0.85	1.2	V
C-B Breakdown Voltage	$V_{(BR)CBO}$	$I_C = 10\mu\text{A}$, $I_E = 0$	180			V
C-E Breakdown Voltage	$V_{(BR)CEO}$	$I_C = 1$, $R_{BE} = \infty$	160			V
E-B Breakdown Voltage	$V_{(BR)EBO}$	$I_E = 10\mu\text{A}$, $I_C = 0$	6			V
Collector Cutoff Current	I_{CBO}	$V_{CB} = 120\text{V}$, $I_E = 0$			0.1	μA
Emitter Cutoff Current	I_{EBO}	$V_{EB} = 4\text{V}$, $I_C = 0$			0.1	μA
Output Capacitance	C_{ob}	$V_{CB} = 10\text{V}$, $f = 1\text{MHz}$		8		pF
DC Current Gain	h_{FE1}	$V_{CE} = 5\text{V}$, $I_C = 100\text{mA}$	100		400	
	h_{FE2}	$V_{CE} = 5\text{V}$, $I_C = 10\text{mA}$	90			
Turn-on Time	t_{ON}	See specified Test circuit		50		ns
Storage Time	t_{STG}	See specified Test circuit		1000		ns
Fall Time	t_F	See specified Test circuit		60		ns
Gain-Bandwidth Product	f_T	$V_{CE} = 5\text{V}$, $I_C = 50\text{mA}$		120		MHz

■ CLASSIFICATION OF h_{FE} 1

RANK	R	S	T
RANGE	100 ~ 200	140 ~ 280	200 ~ 400

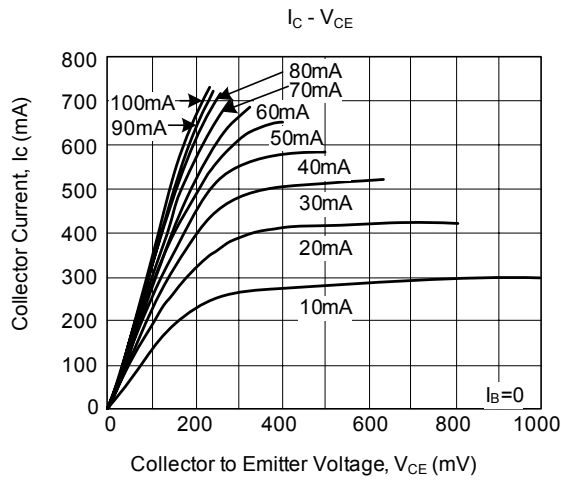
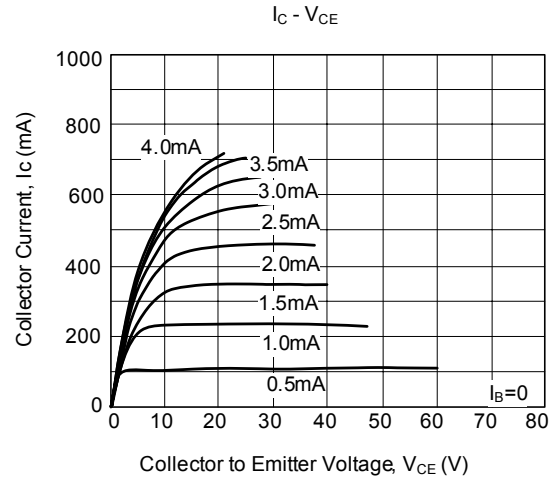
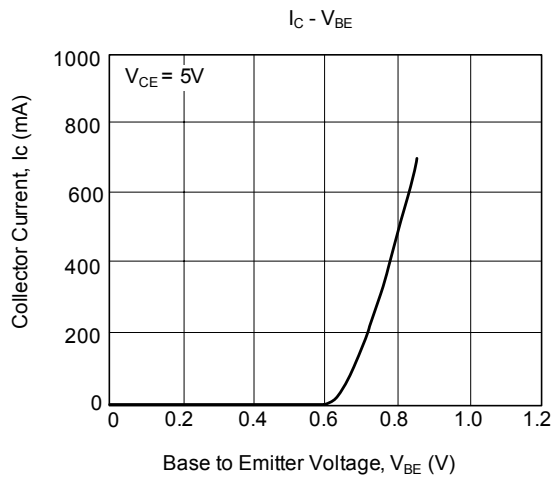
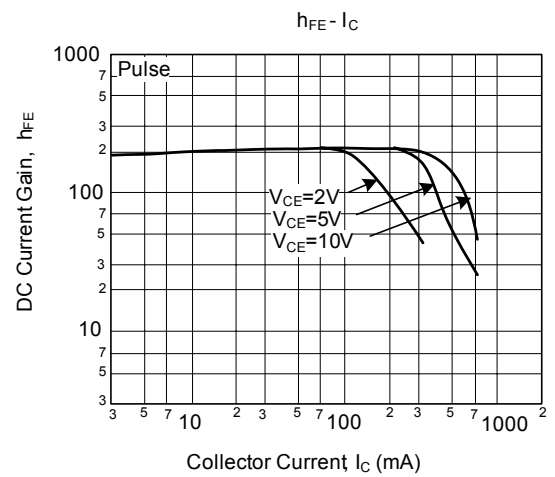
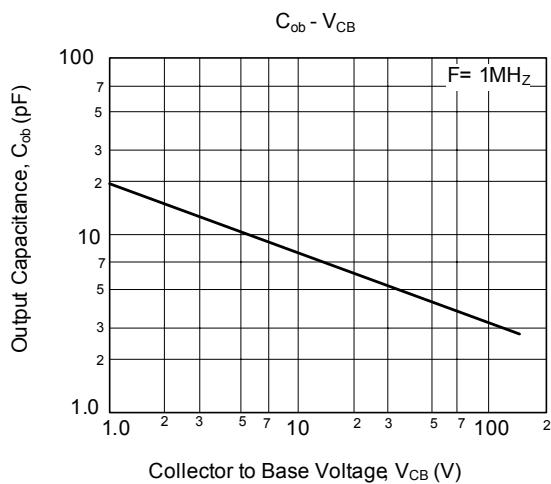
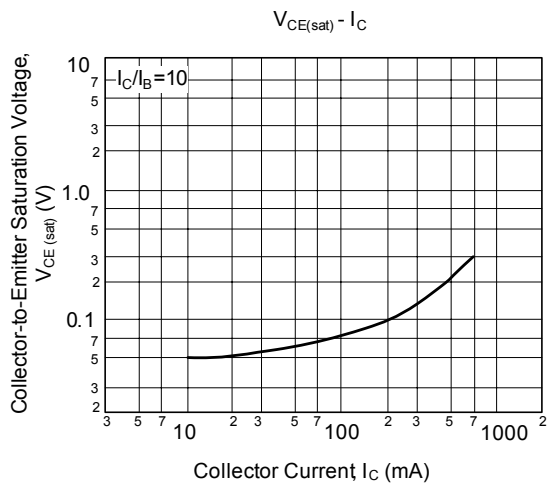
■ SWITCHING TIME TEST CIRCUIT



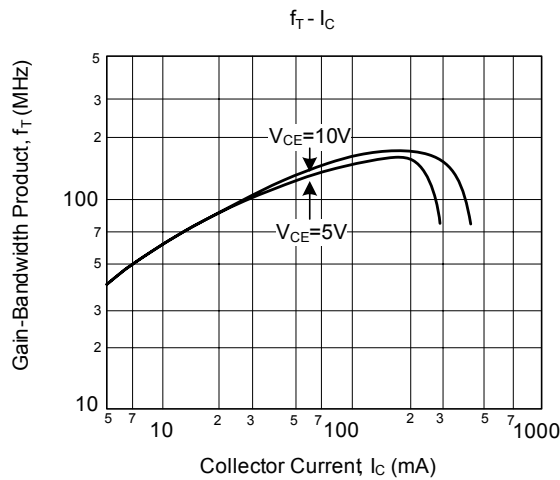
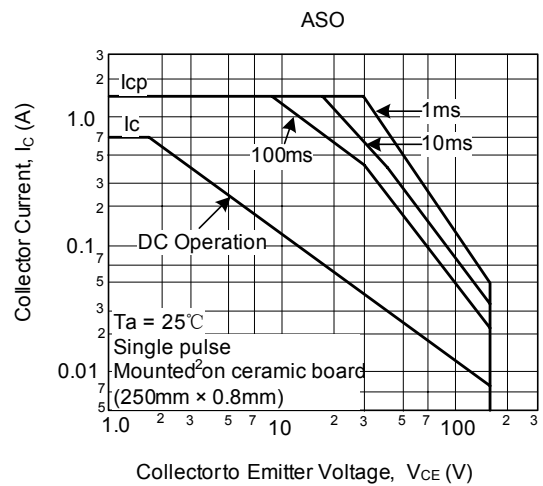
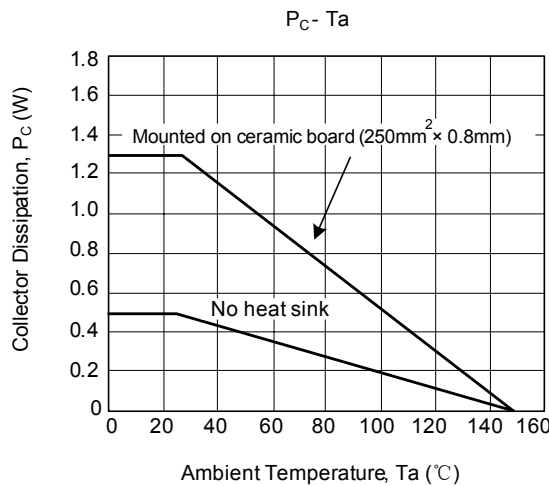
$$20I_{B1} = -20I_{B2} = I_C = 300\text{mA}$$

Unit (Resistance: Ω , Capacitance: F)

■ TYPICAL CHARACTERISTICS



■ TYPICAL CHARACTERISTICS(Cont.)



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