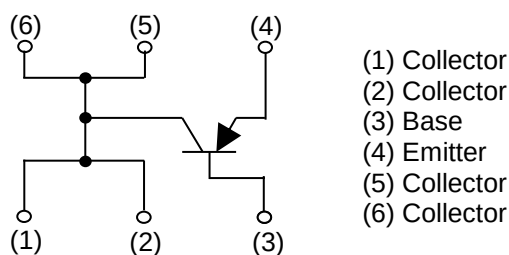


Parameter	Value
V_{CEO}	-30V
I_C	-5A

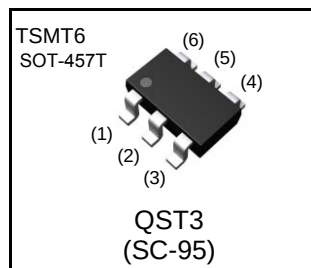
●Features

- 1) Suitable for Middle Power Driver
- 2) Complementary NPN Types : QSX2
- 3) Low $V_{CE(sat)}$
 $V_{CE(sat)} = -0.25V(\text{Max.})$
 $(I_C/I_B = -2A / -40mA)$
- 4) Lead Free/RoHS Compliant.

●Inner circuit



●Outline



●Applications

Motor driver , LED driver
 Power supply

●Packaging specifications

Part No.	Package	Package size (mm)	Taping code	Reel size (mm)	Tape width (mm)	Basic ordering unit (pcs)	Marking
QST3	TSMT6	2928	TR	180	8	3,000	T03

●Absolute maximum ratings (Ta = 25°C)

Parameter		Symbol	Values	Unit
Collector-base voltage		V_{CBO}	-30	V
Collector-emitter voltage		V_{CEO}	-30	V
Emitter-base voltage		V_{EBO}	-6	V
Collector current	DC	I_C	-5.0	A
	Pulsed	I_{CP}^{*1}	-8.0	A
Power dissipation		P_D^{*2}	500	mW
		P_D^{*3}	1.25	W
Junction temperature		T_j	150	°C
Range of storage temperature		T_{stg}	-55 to +150	°C

*1 Pw=1ms , single pulse

*2 Each terminal mounted on a reference land

*3 Mounted on a ceramic board (25×25×0.8 mm)

●Electrical characteristics (Ta = 25°C)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Collector-emitter breakdown voltage	BV_{CEO}	$I_C = -1mA$	-30	-	-	V
Collector-base breakdown voltage	BV_{CBO}	$I_C = -10\mu A$	-30	-	-	V
Emitter-base breakdown voltage	BV_{EBO}	$I_E = -10\mu A$	-6	-	-	V
Collector cut-off current	I_{CBO}	$V_{CB} = -30V$	-	-	-100	nA
Emitter cut-off current	I_{EBO}	$V_{EB} = -6V$	-	-	-100	nA
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C = -2A, I_B = -40mA$	-	-170	-250	mV
DC current gain	h_{FE}	$V_{CE} = -2V, I_C = -500mA$	270	-	680	-
Transition frequency	f_T	$V_{CE} = -2V, I_E = 500mA$ $f=100MHz$	-	200	-	MHz
Output capacitance	C_{ob}	$V_{CB} = -10V, I_E = 0A$ $f = 1MHz$	-	60	-	pF

●Electrical characteristic curves(Ta = 25°C)

Fig.1 Ground Emitter Propagation Characteristics

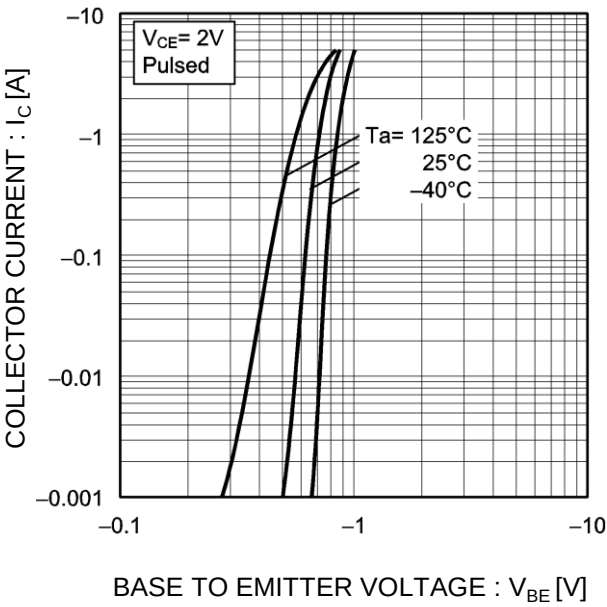


Fig.2 Typical Output Characteristics

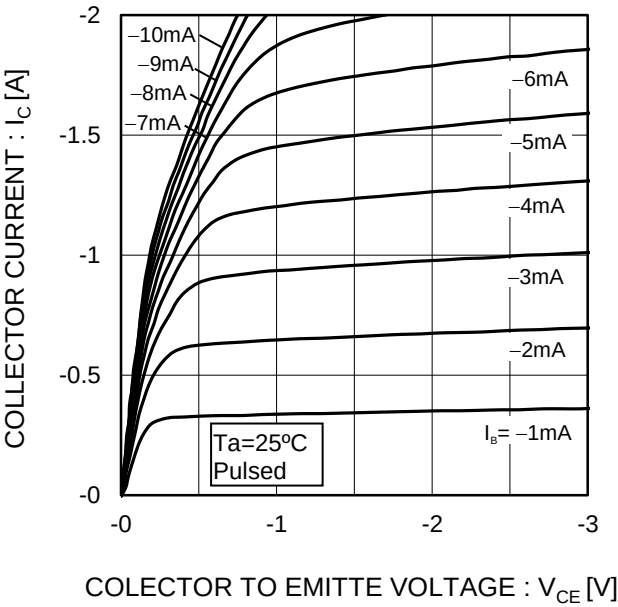


Fig.3 DC Current Gain vs. Collector Current(I)

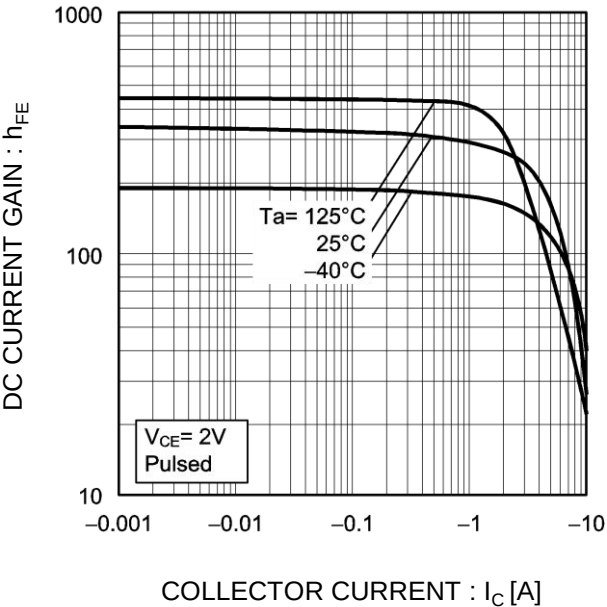
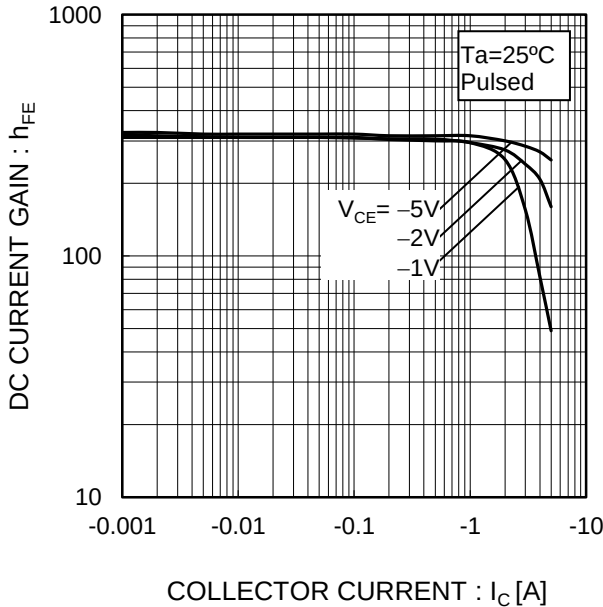


Fig.4 DC Current Gain vs. Collector Current(II)



●Electrical characteristic curves(Ta = 25°C)

Fig.5 Collector-Emitter Saturation Voltage vs. Collector Current (I)

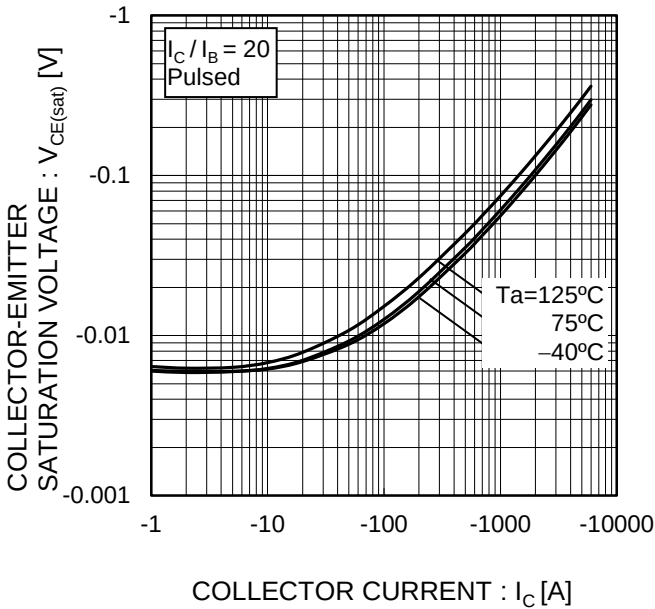


Fig.6 Collector-Emitter Saturation Voltage vs. Collector Current (II)

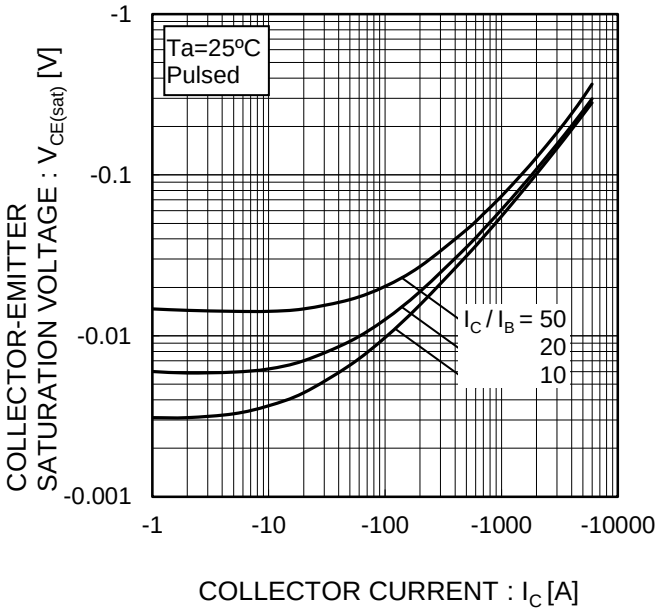


Fig.7 Base-Emitter Saturation Voltage vs. Collector Current

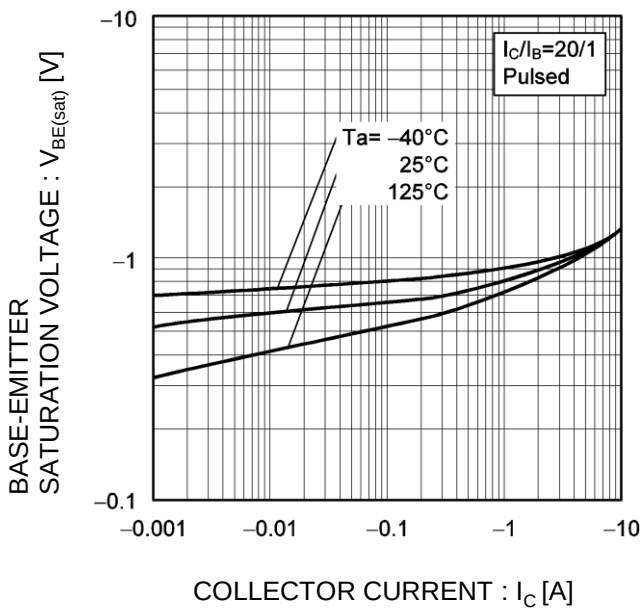
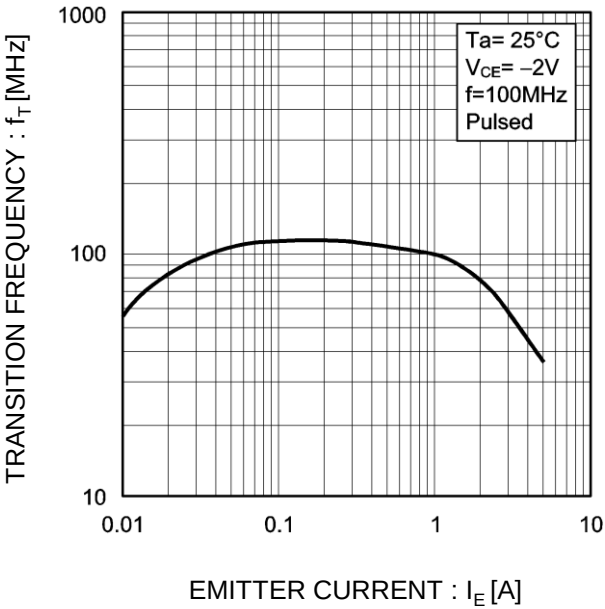


Fig.8 Gain Bandwidth Product vs. Emitter Current



●Electrical characteristic curves(Ta = 25°C)

Fig.9 Emitter input capacitance vs.
Emitter-Base Voltage
Collector output capacitance vs.
Collector-Base Voltage

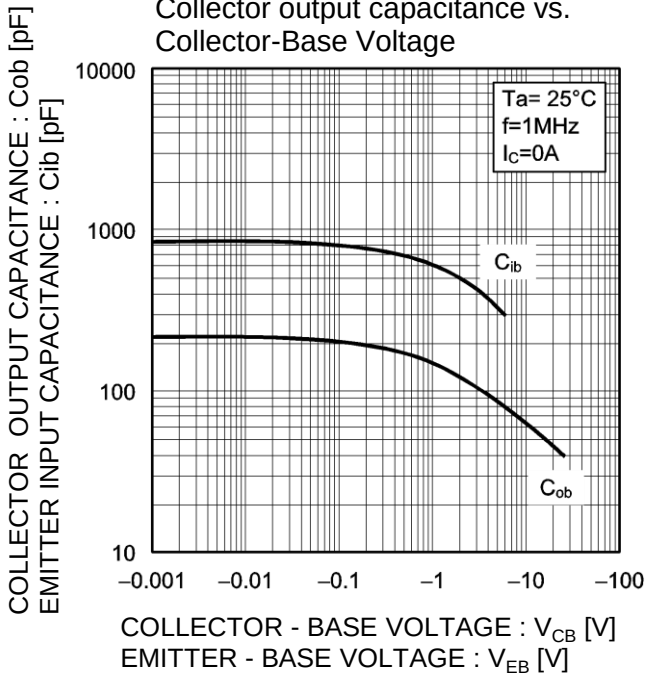
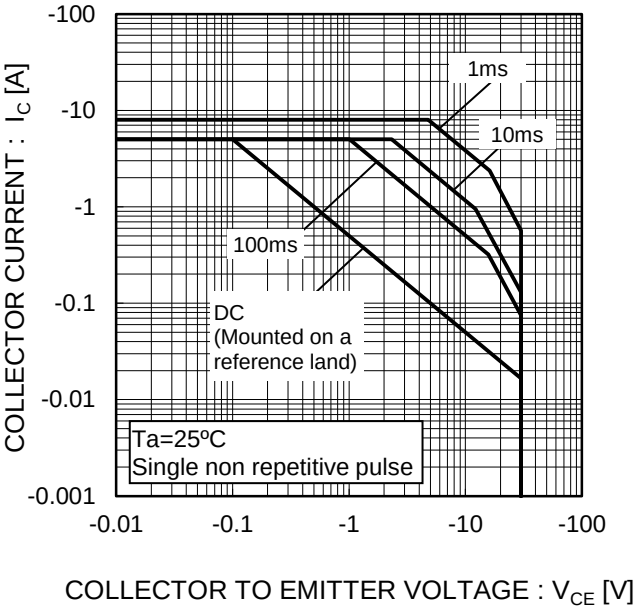
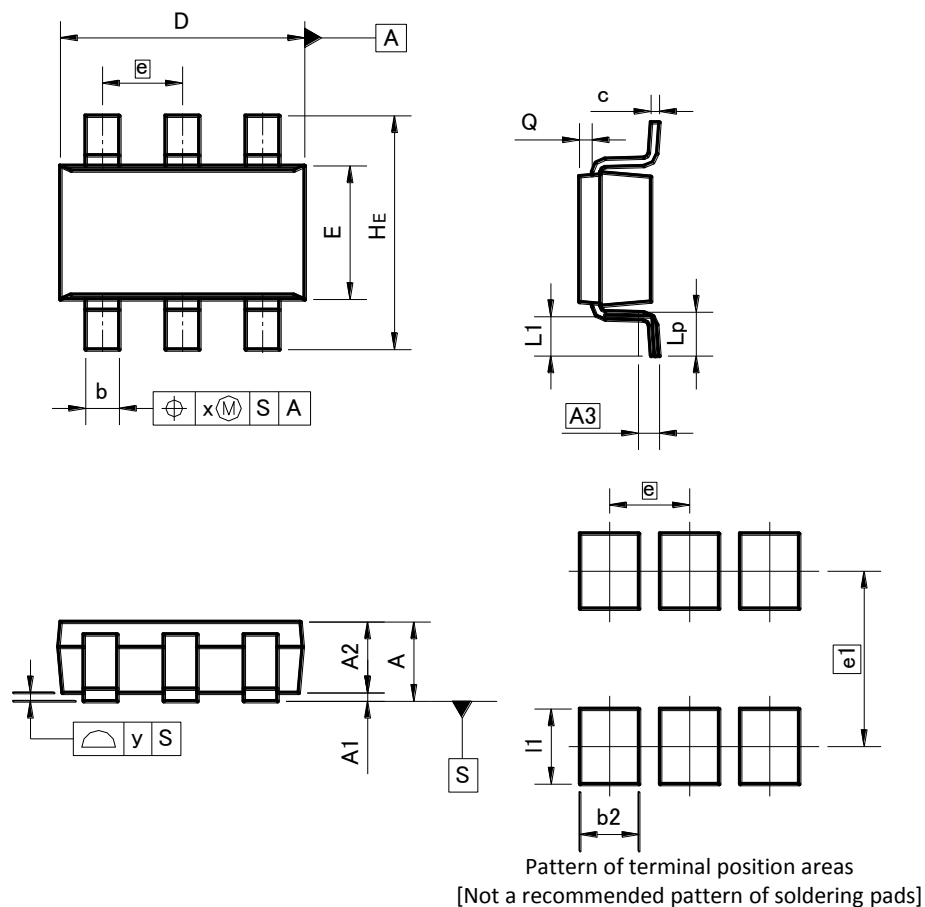


Fig.10 Safe Operating Area



●Dimensions (Unit : mm)

TSMT6



DIM	MILIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	—	1.00	—	0.039
A1	0.00	0.10	0.000	0.004
A2	0.75	0.95	0.030	0.037
A3	0.25		0.010	
b	0.35	0.50	0.014	0.020
c	0.10	0.26	0.004	0.010
D	2.80	3.00	0.110	0.118
E	1.50	1.80	0.059	0.071
e	0.95		0.037	
HE	2.60	3.00	0.102	0.118
L1	0.30	0.60	0.012	0.024
Lp	0.40	0.70	0.016	0.028
Q	0.05	0.25	0.002	0.010
x	—	0.20	—	0.008
y	—	0.10	—	0.004

DIM	MILIMETERS		INCHES	
	MIN	MAX	MIN	MAX
b2	—	0.70	—	0.028
e1	2.10		0.083	
l1	—	0.90	—	0.035

Dimension in mm / inches

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