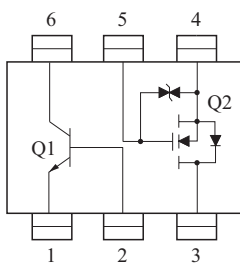


POWER MANAGEMENT.

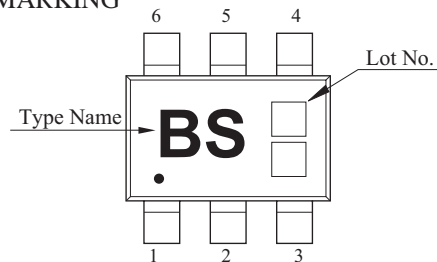
FEATURES

- Including two devices in US6.
- (Ultra Super mini type with 6 leads)
- Simplify circuit design.
- Reduce a quantity of parts and manufacturing process.

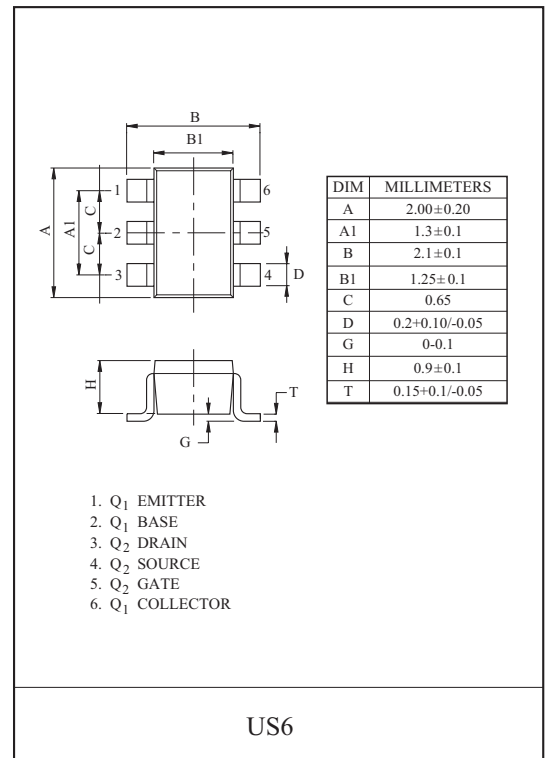
EQUIVALENT CIRCUIT (TOP VIEW)



MARKING



THIS TRANSISTOR IS ELECTROSTATIC SENSITIVE DEVICE.
PLEASE HANDLE WITH CAUTION.



Q₁ MAXIMUM RATING (Ta=25 °C)

CHARACTERISTIC	SYMBOL	RATING	UNIT
Collector-Base Voltage	V _{CB0}	15	V
Collector-Emitter Voltage	V _{CEO}	12	V
Emitter-Base Voltage	V _{EBO}	6	V
Collector Current	I _C	500	mA
	I _{CP} *	1	A
Collector Power Dissipation	P _C *	150	mW
Junction Temperature	T _j	150	°C
Storage Temperature Range	T _{stg}	-55 ~ 150	°C

* Single Pulse PW=1mS.

** 120mW per element must not be exceeded. Each terminal mounted on a recommended land.

Q₂ MAXIMUM RATING (Ta=25 °C)

CHARACTERISTIC	SYMBOL	RATING	UNIT
Drain-Source Voltage	V _{DS}	30	V
Gate-Source Voltage	V _{GSS}	±20	V
DC Drain Current	I _D	100	mA
Drain Power Dissipation	P _C **	150	mW
Channel Temperature	T _{ch}	150	°C
Storage Temperature Range	T _{stg}	-55 ~ 150	°C

** 120mW per element must not be exceeded. Each terminal mounted on a recommended land.

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Q₁ ELECTRICAL CHARACTERISTICS (Ta=25 °C)

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Collector Cut-off Current	I _{CBO}	V _{CB} =15V, I _E =0	-	-	100	nA
Emitter Cut-off Current	I _{EBO}	V _{EB} =6V, I _C =0	-	-	100	nA
Collector-Base Breakdown Voltage	V _{(BR)CBO}	I _C =10μA	15	-	-	V
Collector-Emitter Breakdown Voltage	V _{(BR)CEO}	I _C =1mA	12	-	-	V
Emitter-Base Breakdown Voltage	V _{(BR)EBO}	I _E =10μA	6	-	-	V
DC Current Gain	h _{FE}	V _{CE} =2V, I _C =10mA	270	-	680	-
Collector-Emitter Saturation Voltage	V _{CE(sat)}	I _C =200mA, I _B =10mA	-	90	250	mV
Transition Frequency	f _T	V _{CE} =2V, I _C =10mA, f _T =100MHz	-	320	-	MHz
Collector Output Capacitance	C _{ob}	V _{CB} =10V, I _E =0, f=1MHz	-	7.5	-	pF

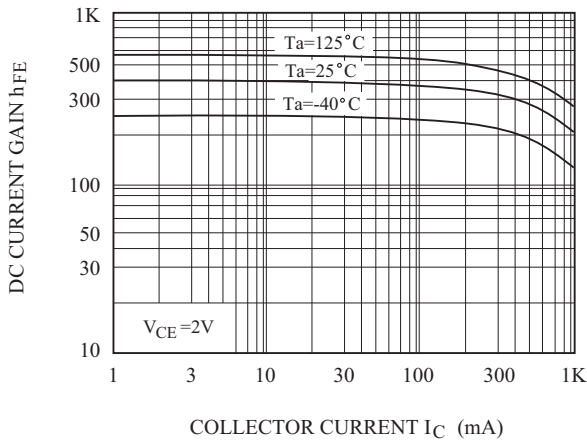
Q₂ ELECTRICAL CHARACTERISTICS (Ta=25 °C)

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT	
Gate Leakage Current	I _{GSS}	V _{GS} = ±20V, V _{DS} =0V	-	-	±1	μA	
Drain-Source Breakdown Voltage	V _{(BR)DSS}	I _D =100μA, V _{GS} =0V	30	-	-	V	
Drain Cut-off Current	I _{DSS}	V _{DS} =30V, V _{GS} =0V	-	-	1	μA	
Gate Threshold Voltage	V _{th}	V _{DS} =3V, I _D =0.1mA	0.5	-	1.5	V	
Forward Transfer Admittance	Y _{fs}	V _{DS} =3V, I _D =10mA	25	-	-	mS	
Drain-Source ON Resistance	R _{DS(ON)}	I _D =10mA, V _{GS} =2.5V	-	4	7	Ω	
Input Capacitance	C _{iss}	V _{DS} =3V, V _{GS} =0V, f=1MHz	-	8.5	-	pF	
Reverse Transfer Capacitance	C _{rss}	V _{DS} =3V, V _{GS} =0V, f=1MHz	-	3.3	-	pF	
Output Capacitance	C _{oss}	V _{DS} =3V, V _{GS} =0V, f=1MHz	-	9.3	-	pF	
Switching Time	Turn-on Time	t _{on}	V _{DD} =5V, I _D =10mA, V _{GS} =0~5V	-	50	-	nS
	Turn-off Time	t _{off}		-	160	-	nS

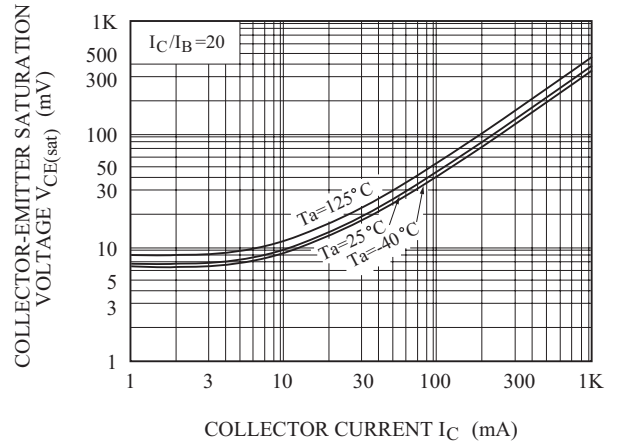
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Q₁ (NPN TRANSISTOR)

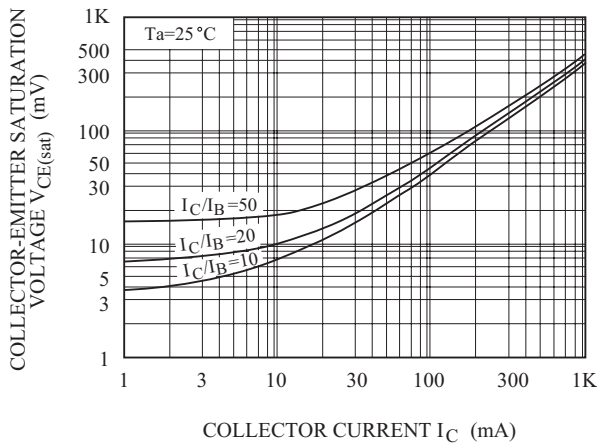
$h_{FE} - I_C$



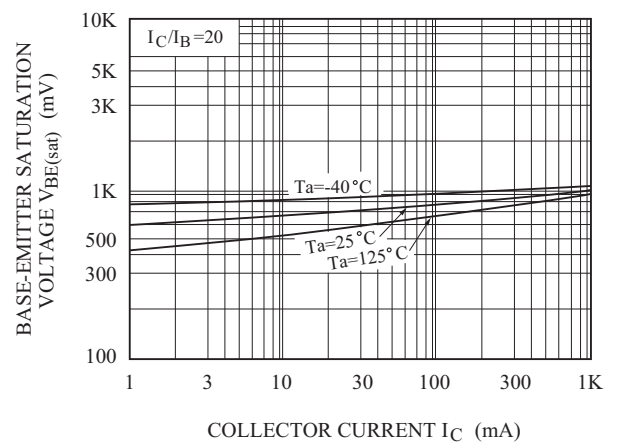
$V_{CE(sat)} - I_C$



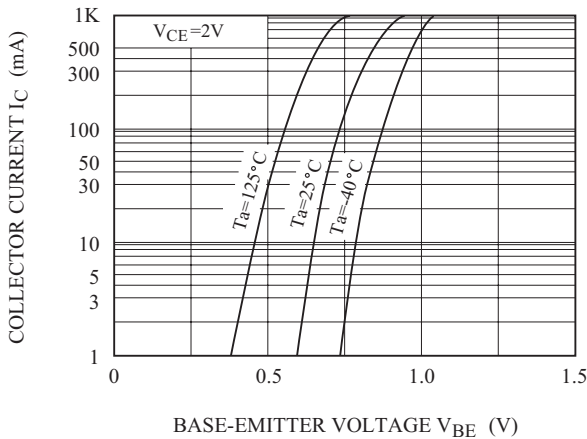
$V_{CE(sat)} - I_C$



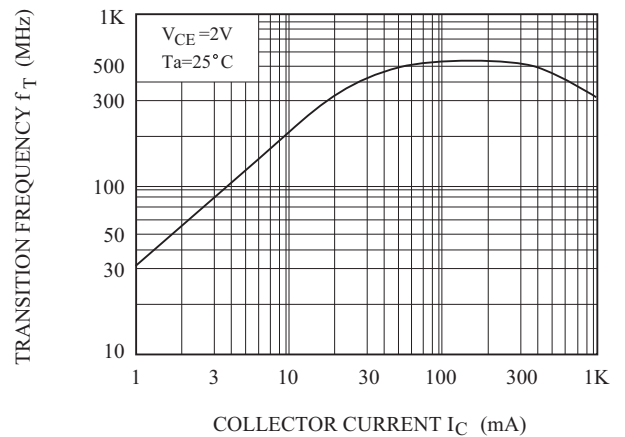
$V_{BE(sat)} - I_C$



$I_C - V_{BE}$

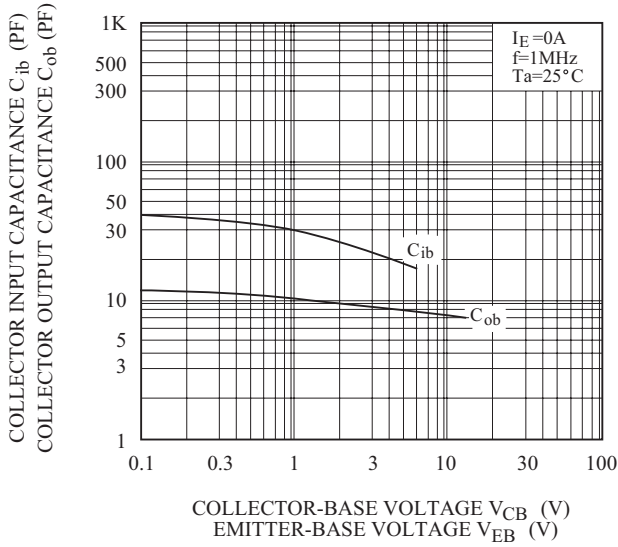


$f_T - I_C$

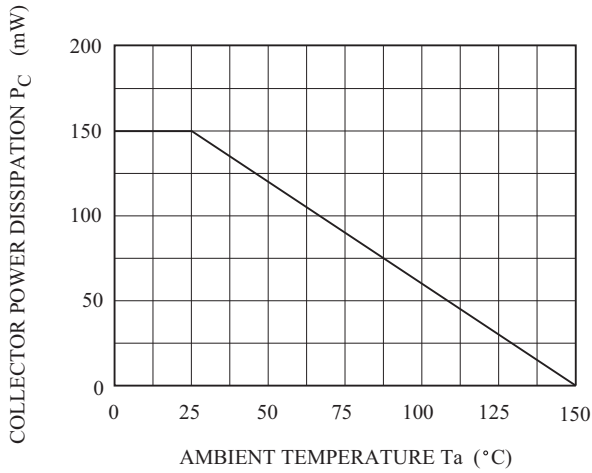


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$C_{ob} - V_{CB}$, $C_{ib} - V_{EB}$



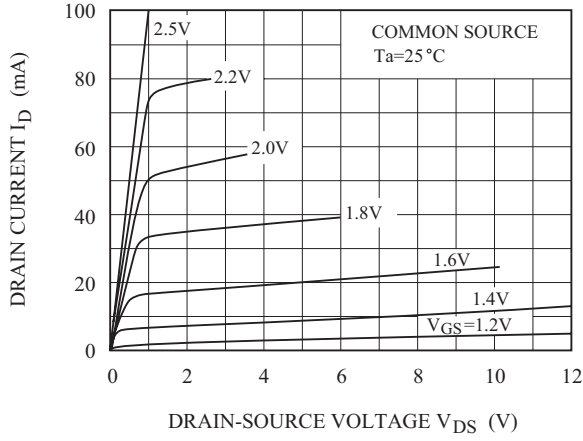
$P_c - T_a$



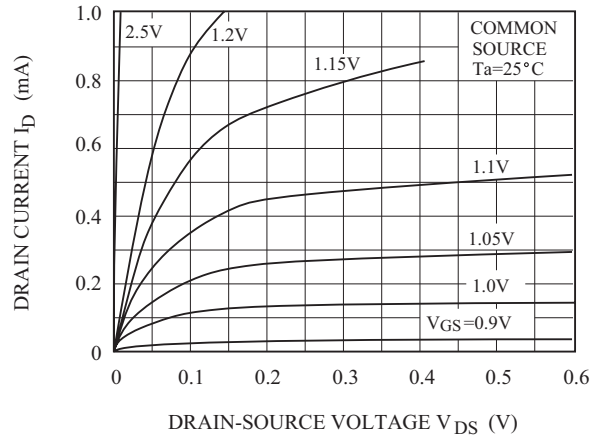
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Q₂ (N CHANNEL MOS FIELD EFFECT TRANSISTOR)

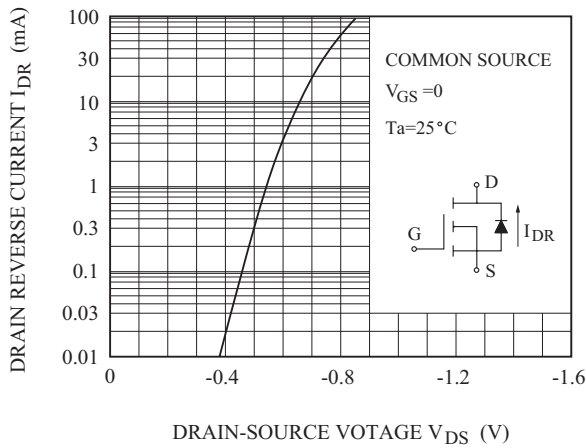
$I_D - V_{DS}$



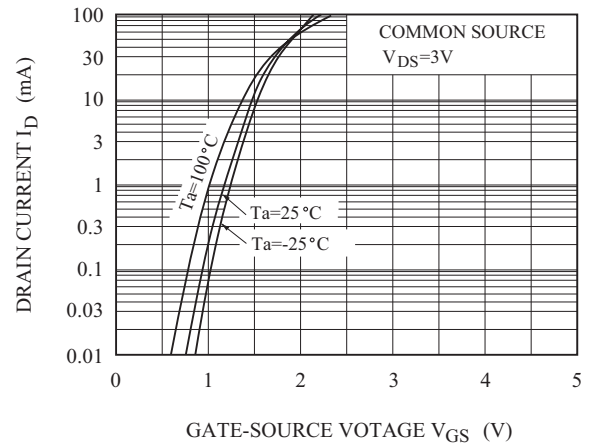
$I_D - V_{DS}$
(LOW VOLTAGE REGION)



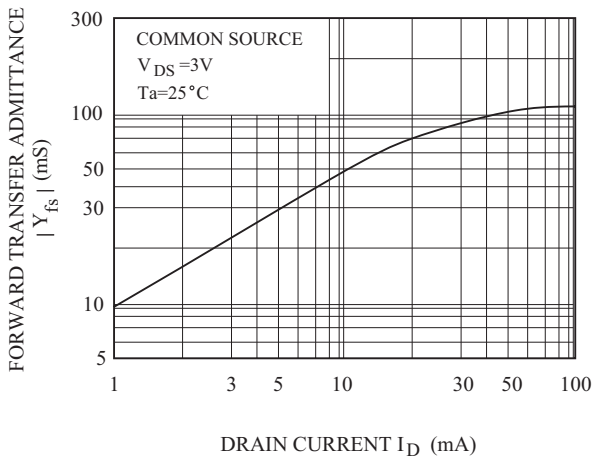
$I_{DR} - V_{DS}$



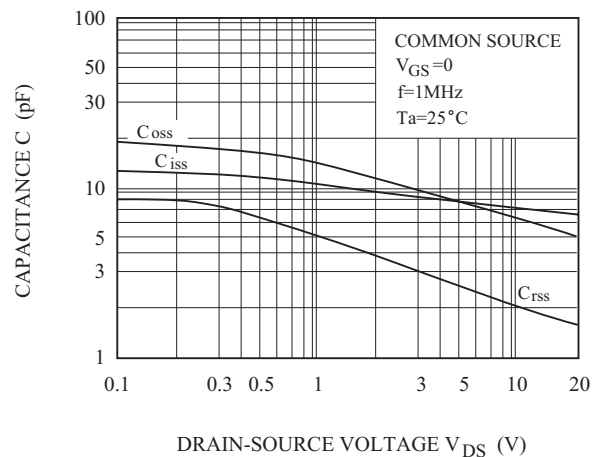
$I_D - V_{GS}$



$|Y_{fs}| - I_D$

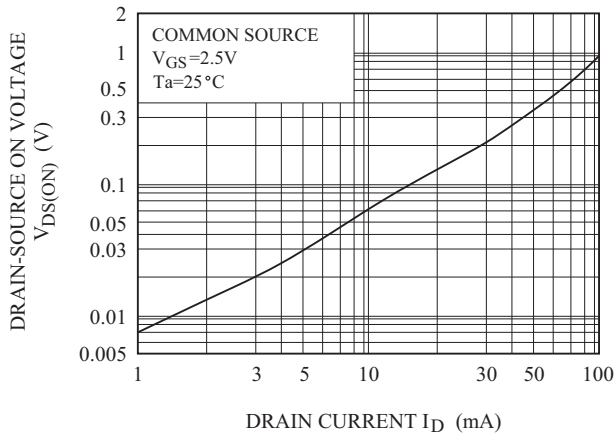


$C - V_{DS}$

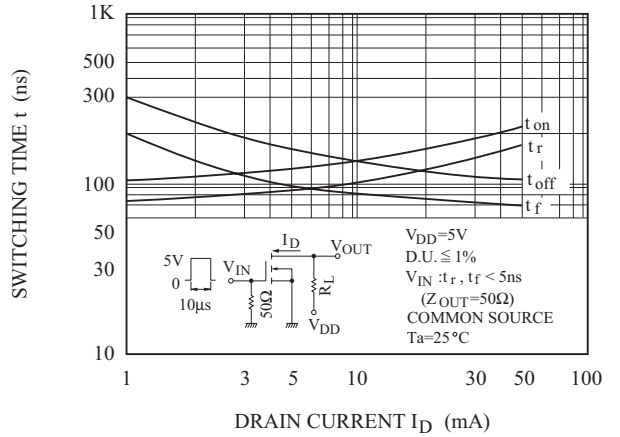


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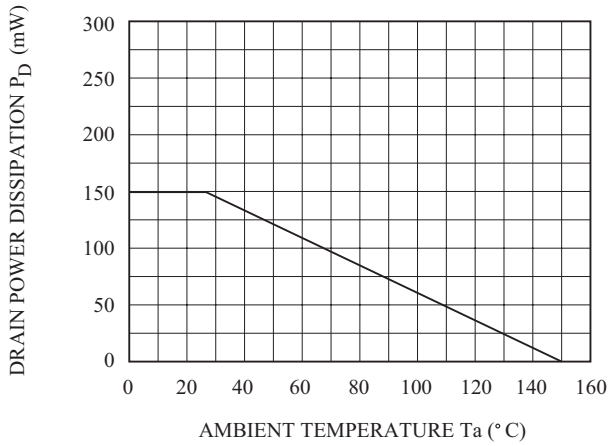
$V_{DS(ON)} - I_D$



$t - I_D$



$P_D - T_a$



SWITCHING TIME TEST CIRCUIT

