

**2SD2012**

**NPN Silicon  
Power Transistors**

**Features**

- High DC Current Gain:  $h_{FE(1)} = 100$  (Min.)
- Low Saturation Voltage:  $V_{CE(sat)} = 1.0V$  (Max.)
- High Power Dissipation:  $P_C = 25W$  ( $T_C = 25^\circ C$ )
- Lead Free Finish/RoHS Compliant (Note1) ("P" Suffix designates RoHS Compliant. See ordering information)
- Epoxy meets UL 94 V-0 flammability rating
- Moisture Sensitivity Level 1

**Maximum Ratings**

- Mounting Torque: 5 in-lbs Maximum

Symbol	Rating	Rating	Unit
$V_{CEO}$	Collector-Emitter Voltage	60	V
$V_{CBO}$	Collector-Base Voltage	60	V
$V_{EBO}$	Emitter-Base Voltage	7.0	V
$I_C$	Collector Current	3.0	A
$I_B$	Base Current	0.5	A
$P_C$	Collector power dissipation $T_A = 25^\circ C$ $T_C = 25^\circ C$	2.0 25	W
$T_J$	Junction Temperature	-55 to +150	$^\circ C$
$T_{STG}$	Storage Temperature	-55 to +150	$^\circ C$

**Electrical Characteristics @25°C Unless Otherwise Specified**

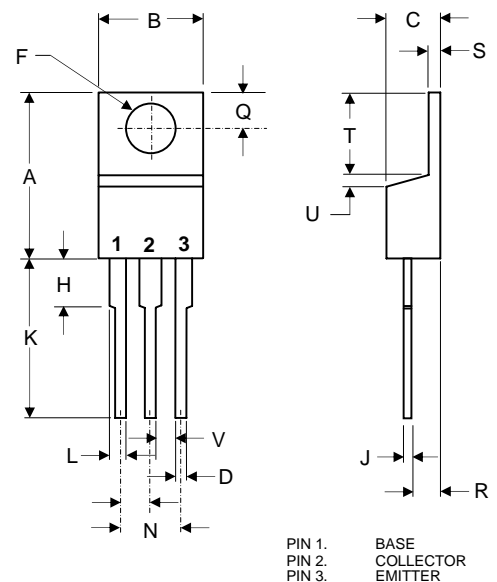
Symbol	Parameter	Min	Typ	Max	Units
<b>OFF CHARACTERISTICS</b>					
$V_{(BR)CEO}$	Collector-Emitter Breakdown Voltage ( $I_C = 50mA$ , $I_B = 0$ )	60	---	---	Vdc
$I_{CBO}$	Collector-Base Cutoff Current ( $V_{CB} = 60Vdc$ , $I_E = 0$ )	---	---	100	$\mu A$
$I_{EBO}$	Emitter-Base Cutoff Current ( $V_{EB} = 7.0Vdc$ , $I_C = 0$ )	---	---	100	$\mu A$

**ON CHARACTERISTICS**

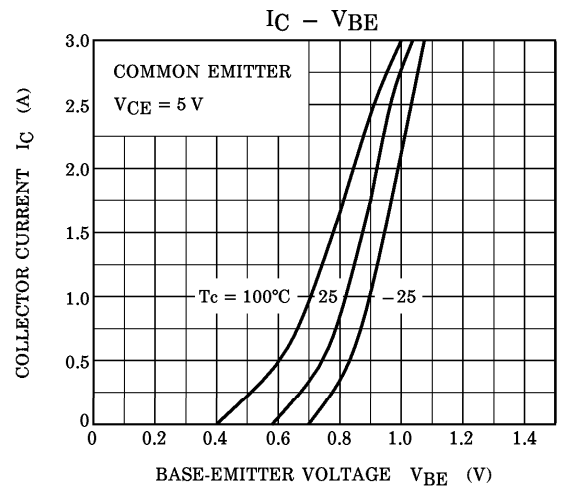
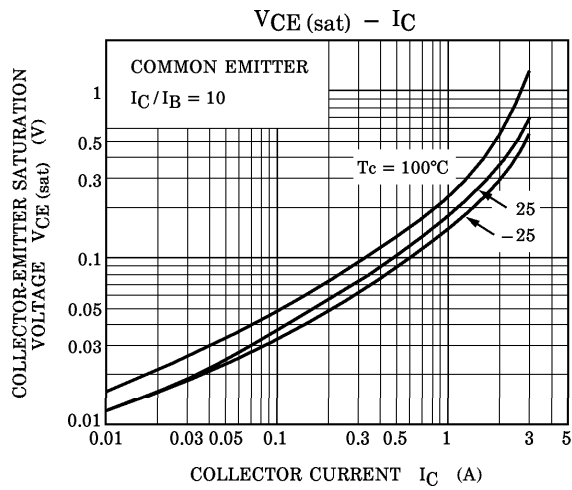
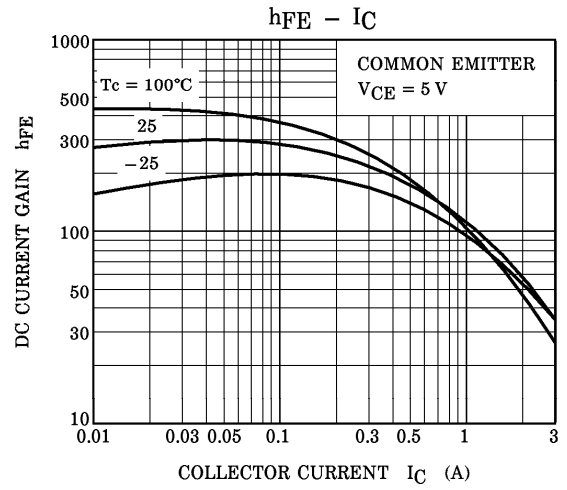
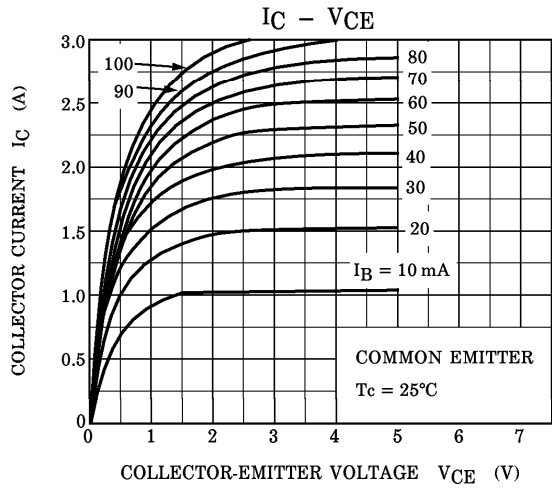
$h_{FE(1)}$	Forward Current Transfer ratio ( $I_C = 0.5A$ , $V_{CE} = 5.0Vdc$ )	100	---	320	---
$h_{FE(2)}$	Forward Current Transfer ratio ( $I_C = 2.0A$ , $V_{CE} = 5.0Vdc$ )	20	---	---	---
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage ( $I_C = 2.0A$ , $I_B = 0.2A$ )	---	0.4	1.0	Vdc
$V_{BE}$	Base-Emitter Saturation Voltage ( $I_C = 0.5A$ , $V_{CE} = 5.0Vdc$ )	---	0.75	1.0	Vdc
$f_T$	Transition Frequency ( $V_{CE} = 5.0Vdc$ , $I_C = 0.5A$ )	---	3.0	---	MHz
$C_{ob}$	Collector Output Capacitance ( $V_{CB} = 10Vdc$ , $I_C = 0$ , $f = 1.0MHz$ )	---	35	---	pF

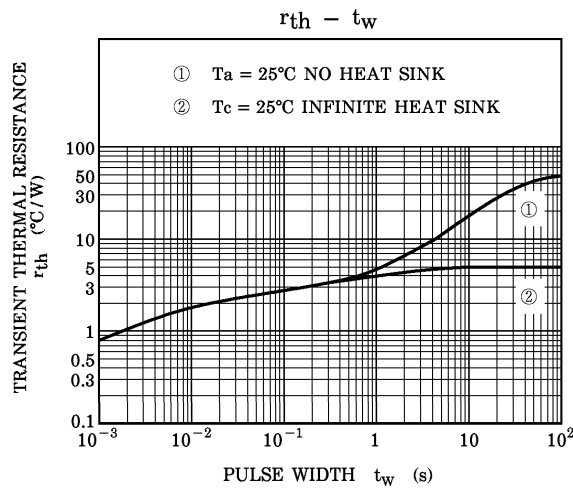
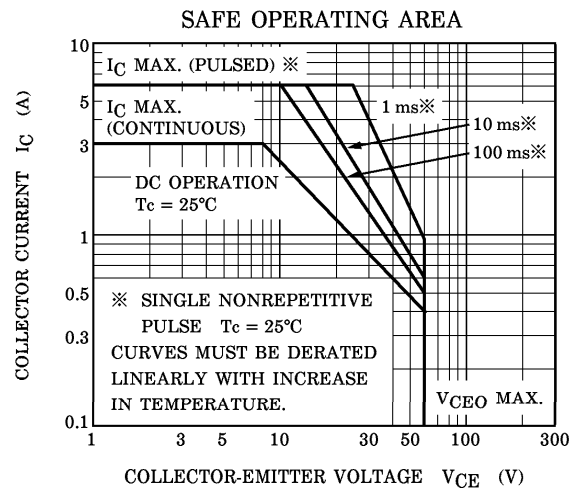
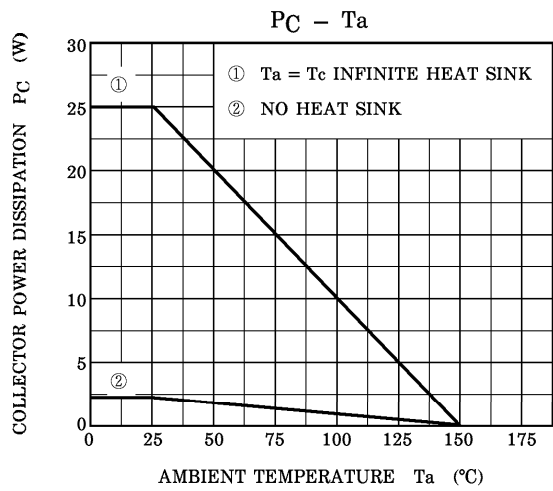
Notes: 1. High Temperature Solder Exemption Applied, see EU Directive Annex 7.

**TO-220**



DIM	DIMENSIONS				NOTE
	INCHES		MM		
	MIN	MAX	MIN	MAX	
A	.560	.625	14.22	15.88	
B	.380	.420	9.65	10.67	
C	.140	.190	3.56	4.82	
D	.020	.045	0.51	1.14	
F	.139	.161	3.53	4.09	Ø
G	.190	.110	2.29	2.79	
H	---	.250	---	6.35	
J	.012	.025	0.30	0.64	
K	.500	.580	12.70	14.73	
L	.045	.060	1.14	1.52	
N	.190	.210	4.83	5.33	
Q	.100	.135	2.54	3.43	
R	.080	.115	2.04	2.92	
S	.045	.055	1.14	1.39	
T	.230	.270	5.84	6.86	
U	----	.050	----	1.27	
V	.045	----	1.15	----	







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Ordering Information :

Device	Packing
Part Number-BP	Bulk; 1 Kpcs/Box

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