

# Darlington 2SD2589

Silicon NPN Triple Diffused Planar Transistor (Complement to type 2SB1659)

Application : Audio, Series Regulator and General Purpose

**Absolute maximum ratings** (Ta=25°C)

Symbol	2SD2589	Unit
VCBO	110	V
VCEO	110	V
VEBO	5	V
IC	6	A
IB	1	A
PC	50(Tc=25°C)	W
Tj	150	°C
Tstg	-55 to +150	°C

**Electrical Characteristics** (Ta=25°C)

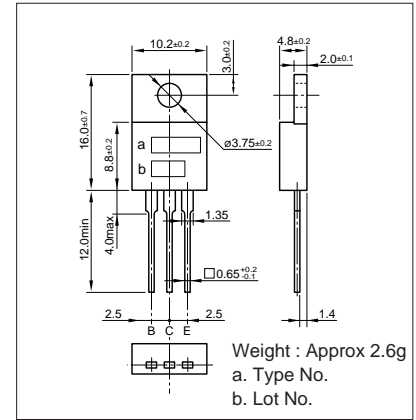
Symbol	Conditions	2SD2589	Unit
ICBO	VCB=110V	100max	μA
IEBO	VEB=5V	100max	μA
V(BR)CEO	IC=30mA	110min	V
hFE	VCE=4V, IC=5A	5000min*	
VCE(sat)	IC=5A, IB=5mA	2.5max	V
VBE(sat)	IC=5A, IB=5mA	3.0max	V
fr	VCE=12V, IE=-0.5A	60typ	MHz
COB	VCB=10V, f=1MHz	55typ	pF

\*hFE Rank  $\bar{O}$ (5000 to 12000), P(6500 to 20000), Y(15000 to 30000)

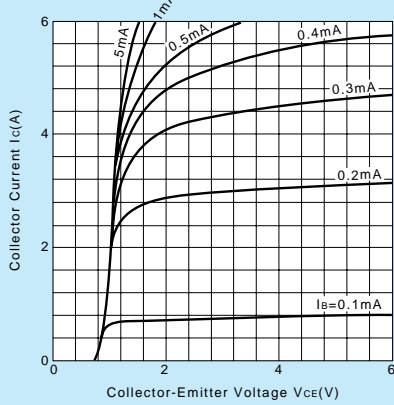
**Typical Switching Characteristics (Common Emitter)**

VCC (V)	RL (Ω)	IC (A)	VBB1 (V)	VBB2 (V)	IB1 (mA)	IB2 (mA)	ton (μs)	tstg (μs)	tr (μs)
30	6	5	10	-5	5	-5	0.8typ	6.2typ	1.1typ

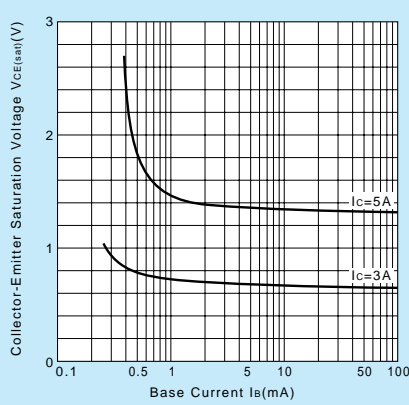
**External Dimensions FM-25(TO220)**



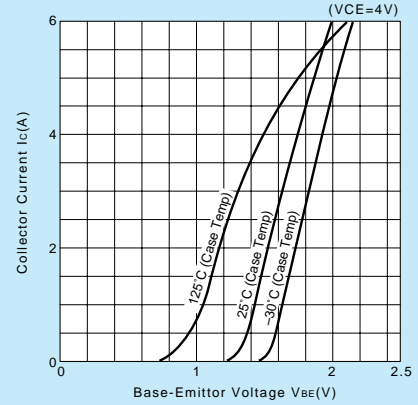
**IC-VCE Characteristics (Typical)**



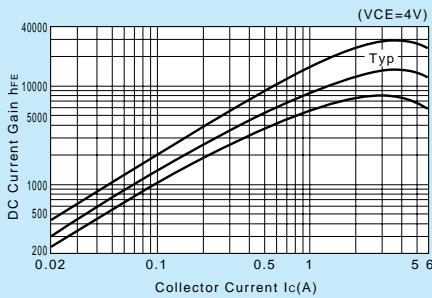
**VCE(sat)-IB Characteristics (Typical)**



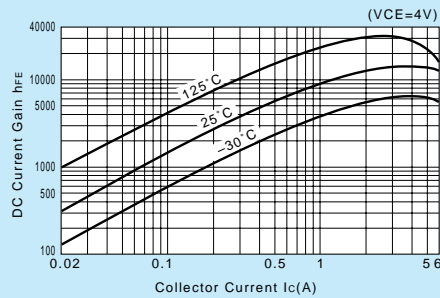
**IC-VBE Temperature Characteristics (Typical)**



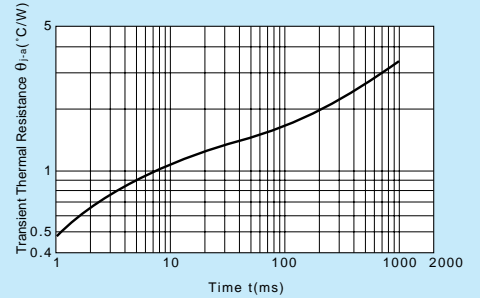
**hFE-IC Characteristics (Typical)**



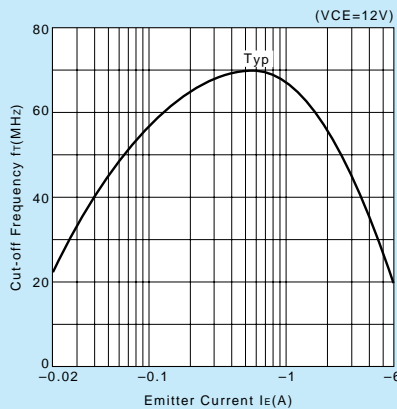
**hFE-IC Temperature Characteristics (Typical)**



**θj-a-t Characteristics**



**fT-IE Characteristics (Typical)**



**Safe Operating Area (Single Pulse)**

**PC-Ta Derating**

